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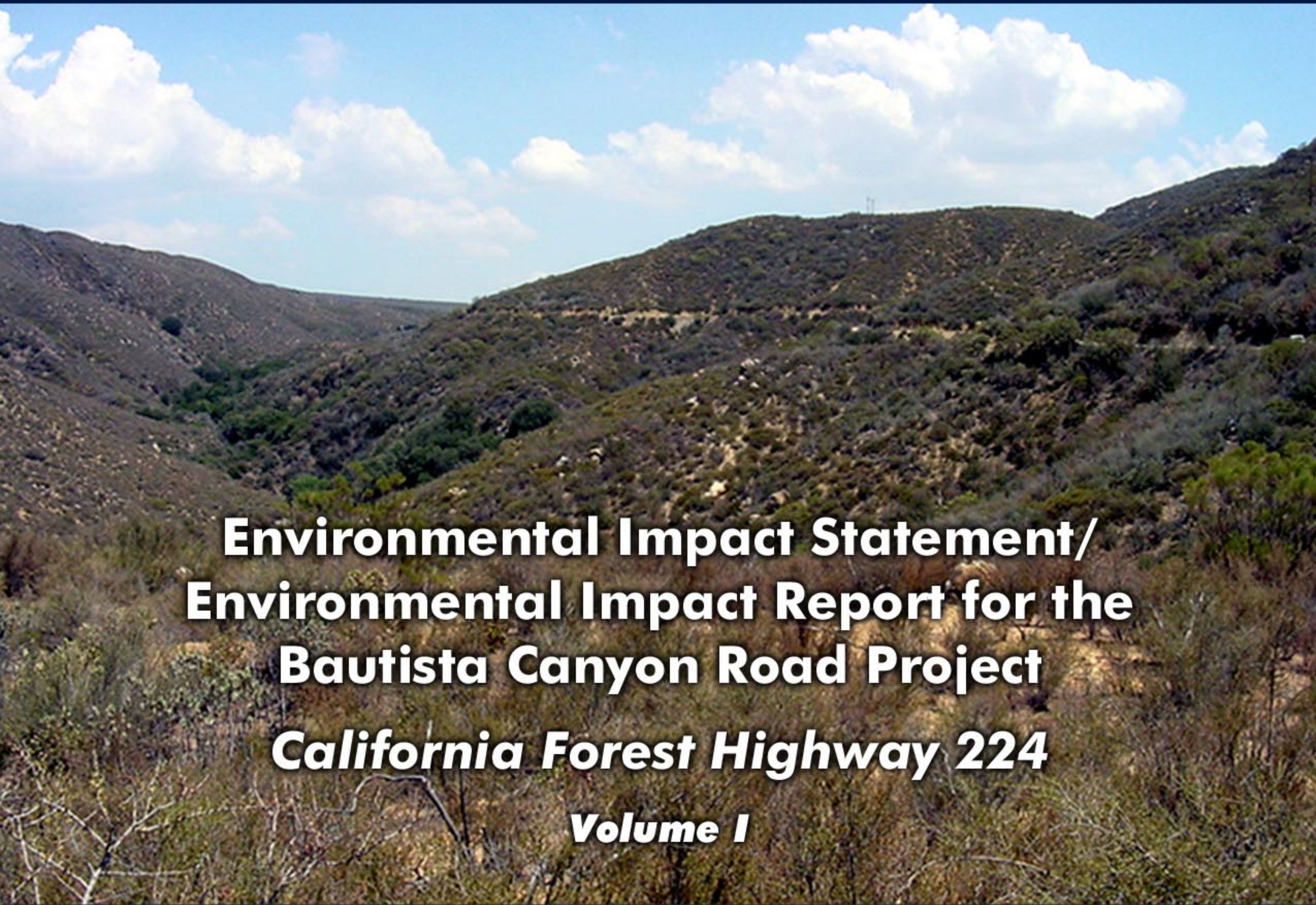

Environmental Impact Statement/ Environmental Impact Report for the Bautista Canyon Road Project

California Forest Highway 224

Volume I

Prepared by:

County of Riverside
Transportation and Land Management Agency
and the
Federal Highway Administration

COUNTY OF RIVERSIDE
MAY 9, 1893

FHWA

August 2004

D R A F T

Environmental Impact Statement/ Environmental Impact Report for the Bautista Canyon Road Project

California Forest Highway 224

Volume I

Prepared by:

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August 2004

Report Number: FHWA-FPCA-EIS-03-01-D

California Forest Highway 224 (Bautista Canyon Road), between Florida Avenue (SH 74) and SH 371, Riverside County, California.

Draft
Environmental Impact Statement/ Environmental Impact Report Draft Section 4(f) Evaluation

Volume I

Submitted Pursuant to:

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by:

County of Riverside, Transportation Department

and

U.S. Department of Transportation
Federal Highway Administration
Central Federal Lands Highway Division

Cooperating Agency

U.S. Department of Agriculture Forest Service

7/26/04
Date

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7/14/04
Date

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LIST OF ACRONYMS

°C	degree Celsius
°F	degree Fahrenheit
AASHTO	American Association of State Highway and Transportation Officials
ac	acre
ACHP	Advisory Council on Historic Preservation
ADA	Americans with Disabilities Act
ADP	Area Drainage Plans
ADT	Average Daily Traffic
AEC	Anza Electric Cooperative
AMEC	AMEC Earth & Environmental, Inc.
APE	Area of Potential Effects
AQMP	Air Quality Management Plan
AST	Aboveground Storage Tank
ASTM	American Society for Testing and Materials
AWM	Agricultural Weights and Measures
Basin Plan	Santa Ana River Basin Water Quality Control Plan
BLM	Bureau of Land Management
BMA	Bautista Management Area (of REMAP)
BMP	Best Management Practice
BMU	Bautista Management Unit (of the SBNF Land and Resource Management Plan)
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCC	Civilian Conservation Corps
CCR	California Code of Regulations
CDC	California Department of Corrections
CDF	California Department of Forestry and Fire Protection
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon Monoxide
CR	County Road
CRHR	California Register of Historical Resources
CRWQCB	California Regional Water Quality Control Board
CSRI	Cultural Systems Research, Inc.
CWA	Clean Water Act
dB	Decibel
dBA	A-Weighted Sound Level
DEH	Department of Environmental Health
DOT	Department of Transportation
DTSC	Department of Toxic Substances Control
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EMWD	Eastern Municipal Water District
EO	Executive Order
FH	Forest Highway
FHWA	Federal Highway Administration
FLHP	Federal Lands Highway Program
FP	Federal Highway Project

ft	feet
ft^2	square foot
GIS	Geographic Information System
ha	hectare
HCP	Habitat Conservation Plan
ISA	Initial Site Assessment
ISTEA	Intermodal Surface Transportation and Efficiency Act
Kg	kilogram
km	kilometer
km/h	kilometers per hour
km^2	square kilometer
L_{eg}	equivalent sound level
LOS	Level of Service
m	meter
m^2	square meter
m^3	cubic meters
MDP	Master Drainage Plans
MEZ	Management Emphasis Zone
mi	mile
mi^2	square mile
mm	millimeters
MOA	Memorandum of Agreement
mph	miles per hour
MSHCP	Multiple Species Habitat Conservation Plan
MSL	mean sea level
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NHT	National Historic Trail
NO	Nitric Oxide
NO_2	Nitrogen dioxide
NOI	Notice of Intent
NOP	Notice of Preparation
NO_x	Nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places
O_3	Ozone
OHV	Off-Highway Vehicle
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated Biphenyl
PM_{10}	particulate matter, less than 10 micrometers in diameter
$PM_{2.5}$	particulate matter, less than 2.5 micrometers in diameter
PRC	Public Resources Code
RCSD	Riverside County Sheriff Department
REMAP	Riverside Extended Mountain Area Plan
ROD	Record of Decision
RTIP	Regional Transportation Improvement Program
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SARWQCB	Santa Ana Regional Water Quality Control Board
SBNF	San Bernardino National Forest
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District

SCH	State Clearinghouse
SCR	Special Contract Requirement
SEE Team	Social, Economic, and Environmental Study Team
SH	State Highway
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SR	State Route
SRI	Statistical Research, Inc.
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TCP	Traditional Cultural Property
TMDL	Total Maximum Daily Load
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDA	U.S. Department of Agriculture
USDAFS	U.S. Department of Agriculture – Forest Service
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	Underground Storage Tank
VMT	Vehicle-Miles Traveled
VQO	Visual Quality Objectives
yd	yard
yd^3	cubic yards

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A mailing list for Distribution of the DEIS is provided in Volume II, Appendix C of the DEIS. Copies of this DEIS and Technical Reports are available for review at the following locations:

FEDERAL HIGHWAY ADMINISTRATION
CENTRAL FEDERAL LANDS HIGHWAY DIVISION
12300 WEST DAKOTA AVENUE
LAKEWOOD, COLORADO

COUNTY OF RIVERSIDE
TRANSPORTATION DEPARTMENT
4080 LEMON ST., 8TH FLOOR
RIVERSIDE, CALIFORNIA

SAN BERNARDINO NATIONAL FOREST
FOREST SUPERVISOR'S OFFICE
1824 S. COMMERCENTER CIRCLE
SAN BERNARDINO, CALIFORNIA

FEDERAL HIGHWAY ADMINISTRATION
CALIFORNIA DIVISION OFFICE
980 NINTH STREET, SUITE 400
SACRAMENTO, CALIFORNIA

U.S. FOREST SERVICE
P.O. BOX 518
54270 PINECREST
IDYLLWILD, CALIFORNIA

U.S. FOREST SERVICE
BIG BEAR DISCOVERY CENTER
P.O. BOX 66
40971 NORTHSHORE DRIVE, HIGHWAY 38
FAWNSKIN, CALIFORNIA

RIVERSIDE COUNTY LIBRARY
ANZA BRANCH
57430 MITCHELL ROAD
ANZA, CALIFORNIA

RIVERSIDE COUNTY LIBRARY
VALLE VISTA BRANCH
25757 FAIRVIEW AVENUE
HEMET, CALIFORNIA

RIVERSIDE COUNTY LIBRARY
IDYLLWILD BRANCH
54185 PINECREST
IDYLLWILD, CALIFORNIA

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ABSTRACT

The proposed action is the reconstruction of a 13.2-kilometer (km) (8.2 mile [mi]) segment of Bautista Canyon Road, including the construction of a new bridge over Bautista Canyon Creek. Three alternative alignments with varying design speeds are evaluated for the Bautista Canyon Road segment in this Draft Environmental Impact Statement/Environmental Impact Report (EIS/EIR), along with the No Action alternative. Alternative C is considered the preferred alternative because it best meets the project objectives of safety and access, with the least number of effects to biological and cultural resources. Alternative C balances higher design with environmental impacts. Alternative C, although second highest in the estimated amount of required earthwork (235,000 cubic meters [307,400 cubic yards]) and second highest in estimated cost ($11.7 million) of the alternatives, is considered the preferred alternative because it best meets the project objectives of safety and access, and requires the second least amount of total area of new disturbance (16.6 hectares [ha] [40.0 acres] [ac]) of the alternatives. Alternative C would result in the second least amount of preliminary total upland habitat compensation required of the alternatives (13.0 ha [32.1 ac]) as well as the lowest preliminary total wetland habitat compensation (0.3 ha [0.92 ac]). Potential beneficial effects of the proposed action include, improved access efficiency for all users including fire/emergency vehicles, increased safety, reduced fugitive dust and engineering upgrades to the regional circulation system in accordance with the County of Riverside General Plan. Adverse effects include noise, biological resources, cultural resources, and visual quality. Written comments on the Draft EIS/EIR must be submitted to Stephen Hallisy or Mary Zambon at the address above within 45 days following the availability of the Draft EIS/EIR.

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SUMMARY

The Federal Highway Administration (FHWA), Central Federal Lands Highway Division, in cooperation with the U.S. Department of Agriculture Forest Service (USDAFS), the California Department of Transportation (Caltrans), and Riverside County, is developing a project to improve a 13.2-kilometer (km) (8.2-mile [mi]) unpaved segment of California Forest Highway (FH) 224, Bautista Canyon Road, in Riverside County, California (Figures 1.3-1 and 1.3-2).

PROPOSED ACTION

The proposed project would realign and pave the 13.2 km (8.2 mi) segment of Bautista Canyon Road consistent with current design standards and regulatory requirements. The roadway would be improved as a low-volume, two-lane rural collector

The purpose of and need for the project is based on the condition of the existing roadway, which prevents it from functioning as an efficient link in the Riverside County transportation system. The currently unpaved segment of Bautista Canyon Road contains many operational deficiencies that require considerable maintenance and impede safe access to and through a portion of the San Bernardino National Forest (SBNF).

This Environmental Impact Statement (EIS) has been prepared under the National Environmental Policy Act (NEPA) for the Bautista Canyon Road Project because the FHWA has determined that the project has an overall “adverse effect” on the quality of the human environment. An Environmental Impact Report (EIR) has been prepared under the California Environmental Quality Act (CEQA) for the project because the County of Riverside has determined that the project has an overall “significant environmental effect” on the environment. The potential exists for environmental effects in the following areas: land use, socioeconomics/environmental justice, traffic/transportation, air quality, noise, biological resources, hydrology/water resources, cultural resources, hazardous materials, visual resources, recreation, soils/geology, public services/utilities, and fire hazard and risk. Preparation and distribution of this EIS/EIR is the method for analyzing the potential effects and presenting effective mitigation measures.

ALTERNATIVES CONSIDERED IN THIS EIS/EIR

This Draft EIS/EIR presents three build alternatives and a No Action alternative, described as follows:

- Alternative A – 40 km/h (25 mph) Design Speed
- Alternative B – 55 km/h (35 mph) Design Speed
- Alternative C – Combination 55/40/55 km/h (35/25/35 mph) Design Speed
- Alternative D – No Action

Alternatives A, B, and C have varying alignments based on proposed design speeds. Alternative C has been designated as the preferred alternative. Under alternative C, the design speed varies depending on topography. These design considerations are intended to maximize the functionality of the proposed roadway while minimizing adverse environmental effects.

Alternative A – 40 km/h (25 mph) Design Speed

The roadway would be paved for two lanes of traffic, one lane in each direction, with a pavement width of 7.8 m (26 ft). The total length of this alternative is approximately 12.3 km (7.6 mi). The proposed design speed for Alternative A is 40 km/h (25 mph). Alternative A would require approximately 225,000 m3 (294,300 yd3) of excavation and would result in approximately 16.1 ha (39.8 ac) of new disturbance. Alternative A would result in cut and fill slopes of up to 25 m (80 ft) in height. For 2025 conditions, the Bautista Canyon Road ADT volumes are projected to increase to levels that are between 1,100 and 1,800 vehicles per day depending upon location. These 2025 traffic volume projections are well within the capacity of a two-lane rural collector.

Alternative B – 55 km/h (35 mph) Design Speed

The roadway would be paved for two lanes of traffic, one lane in each direction, with a pavement width of 7.8 m (26 ft). The total length of this alternative is approximately 12.1 km (7.5 mi). The proposed design speed for Alternative B is 55 km/h (35 mph). Alternative B would require approximately 303,000 m3 (396,400 yd3) of excavation and would result in approximately 17.9 ha (44.2 ac) of new disturbance. Alternative B would result in cut and fill slopes of up to 25 m (80 ft) in height.

Alternative C – Combination 55/40/55 km/h (35/25/35 mph) Design Speed

The roadway would be paved for two lanes of traffic, one lane in each direction, with a pavement width of 7.8 m (26 ft). The total length of this alternative is approximately 12.3 km (7.6 mi). As noted, the study area was divided into three segments based on terrain. Under Alternative C, design speeds were incorporated accordingly to maximize travel efficiency while minimizing resource disturbance. Alternative C would incorporate a 55 km/h (35 mph) design speed in Segments 1 and 3 of Bautista Canyon Road where the terrain is flatter and a 40 km/h (25 mph) along Segment 2 where the terrain is mountainous. Implementation of Alternative C would require approximately 235,000 m^3 (307,400 yd^3) of excavation and would result in approximately 16.6 ha (41.0 ac) of new disturbance. Alternative C would result in cut and fill slopes of up to 25 m (80 ft) in height (Figure 1.3-2).

Alternative D – No Action (No Project)

The No Action (No Project) alternative is characterized as a "no-build" alternative. Under this alternative, no road improvements are proposed and Bautista Canyon Road would not be paved or realigned. The existing road and traffic conditions along Bautista Canyon Road are expected to worsen as traffic volumes increase. Current maintenance of the roadway would continue and adequate maintenance would become increasingly expensive as the deficient aspects of the road remain unrepaired.

ALTERNATIVES CONSIDERED, BUT ELIMINATED

The alternatives discussed below were evaluated and found not to be prudent because they are inadequate in terms of engineering design, traffic safety, or ineffectiveness in meeting other project goals and objectives. Based on these findings, the alternatives were eliminated from further review for the reasons described below.

Proposed Variations to Build Alternatives

Alternatives A, B, and C have undergone a review process to examine potential effects to biological, cultural, and other resources. Where practicable, alternatives were revised to reflect more environmentally sensitive alignment variations within each alternative.

Ridge #1 Alignments: The existing roadway through this area descends into the drainage for Bautista Creek and crosses the creek with a low water crossing. The existing alignment contains multiple sharp horizontal curves that could not accommodate the proposed design speeds.

Originally, there were two alignment alternatives at the Bautista Creek crossing (Ridge # 1) in addition to the proposed alignment. One was a straight crossing that cut off the existing horseshoe alignment. This alignment bridged the creek drainage by continuing southeast where the existing road turns sharply to the north (the beginning of the “horseshoe”) and then reconnected at the eastern end of the “horseshoe”. In an effort to avoid impacts to wetlands, a second alignment (the “no bridge” alignment) was identified, which closely followed the existing alignment based on a 40 km/h (25 mph) design speed. The “no bridge” alignment shifted to the north, roughly following the existing alignment, and crossed Bautista Creek close to the existing crossing. The use of a culvert instead of a bridge was considered for this alignment due to the low profile. Preliminary review of these alignments indicated that each would result in unacceptable negative impacts to environmental resources. As a result, the proposed alignment was identified for this location and these early Ridge #1 alignments were eliminated from further review.

Ridge #2 Alignment: Ridge #2 is the location of another existing “horseshoe” curve that needs to be realigned to accommodate the 40 km/h (25 mph) design speed. The original design followed the existing roadway alignment on the north side of the hill along Bautista Creek (the top of the “horseshoe”). This alignment impacted wetlands and had a negative impact on wildlife. In order to reduce these impacts, the proposed alignment at Ridge #2 was shifted to the south of the hill along a natural drainage channel grade, eliminating the impacts to the wetlands and other environmental resources. Consequently, the earlier Ridge #2 alignment was eliminated from analysis in the EIS/EIR.

Pave Existing Bautista Canyon Road

Paving the existing road alignment was considered but eliminated because it would not meet the project's objectives to improve safety and emergency access. The existing roadway was not engineered to current standards and is too narrow in several locations for vehicles to pass safely. Furthermore, basic roadway geometry is poor, with numerous sharp horizontal and vertical curves that limit sight distance. Additionally, roadway drainage is poor and road washouts and rockfalls caused by storm water runoff and seasonal flooding at the low-water crossings of Bautista Creek and other drainages would prevent use of the road during storm events. Paving the existing route would leave these deficiencies in place and would not be an appropriate use of federal funds because suitable design standards would not be achieved and it would not accomplish the purpose of or satisfy the need for the proposed project.

Reconstruct and No Pave

Implementation of this alternative would involve reconstructing the roadway to one of the build alternative standards; however, the surface would not be paved. This alternative was eliminated because it would result in equal direct environmental effects as the build alternatives and greater indirect effects resulting from the unpaved surface. This alternative would not adequately address maintenance needs because the unpaved surface would continue to require regular maintenance to maintain a safe, smooth driving surface. Thus, implementation of this alternative would not accomplish the purpose of or satisfy the need for the project.

New Route Using Existing Streets

A new route using roads such as SH 371 to SH 74 to the east or SH 371 to Wilson Valley Road/Sage Road/State Street to the west was considered. This alternative was eliminated from further consideration because it would not improve access to the SBNF or provide a more efficient link between Valle Vista and Anza. The existing road and traffic conditions along Bautista Canyon Road are expected to worsen as traffic volumes increase. Current roadway maintenance would continue and adequate maintenance would become increasingly more expensive as the deficient aspects of the road remain unrepaired.

New Route Through Bautista Canyon

A completely new alignment through Bautista Canyon was considered. This alternative was eliminated because construction of a new road would have greater environmental effects than those projected for reconstruction of the existing Bautista Canyon Road. Additionally, the SBNF opposed implementation of this alternative. A new route through Bautista Canyon would result in a significant increase in new disturbance over the build alternatives considered in this EIS/EIR, amplifying the potential for significant environmental effects.

25 or 32 km/h (15 or 20 mph) Design Speed for Entire Route

A 25 or 32 km/h (15 or 20 mph) design speed for Bautista Canyon Road was considered but eliminated after review of established design standards because the projected traffic volumes would be too high for this slow of a design speed. Projected traffic volumes indicate a rural collector classification, which require design speeds of 40-48 km/h (25-30 mph). Furthermore, environmental impacts would be similar to those identified for the proposed action due to the similarity in design criteria and the required curve widening needed to accommodate the design speed. Therefore, no advantage (environmental or otherwise) would be realized by selecting this alternative.

Alternative Transit

Alternative means of transit were considered and eliminated from further consideration because of the remote location and the lack of connectivity to other existing mass transit facilities. Additionally, current deficiencies make this unusable as a transit route. As such, transit or other modes of transportation would not meet project objectives, including the provision of a safe vehicle travel route and improved access for emergency vehicles.

ENVIRONMENTAL SETTING

Improvements to the 13.2 km (8.2 mi) segment of Bautista Canyon Road are located almost entirely within the SBNF in central Riverside County. Most of the existing roadway is located on public lands (state and federal), with the lower 2.3 km (1.4 mi) portion traversing through rural residential and private lands. Surrounding land uses are mainly characterized as open space and passive recreational lands. Bautista Canyon Road links the communities of Valle Vista on the northern terminus with Anza on the southern terminus.

The project study area is characterized by open space, canyons, and creek beds, and is vegetated primarily with native vegetation, including scrubland, chaparral, and riparian habitats. Bautista Canyon Road is located within Bautista Canyon running parallel to the canyon and Bautista Creek. The canyon is flanked on both sides by ridges of small mountains.

AREAS OF CONCERN, ISSUES RAISED BY THE PUBLIC AND AGENCIES, AND UNRESOLVED ISSUES

Juan Bautista de Anza National Historic Trail (Anza NHT)

The Anza NHT was established to commemorate the Spanish colonizing expeditions from Sonora, Mexico, into Upper California in the 1770s. In August 1990, Congress passed Public Law 101-365 making the Juan Bautista de Anza National Historic Trail (Anza NHT) a component of the National Trails System, to be administered by the National Parks Service (NPS). The Anza NHT is an historic route that consists of “recreational trail” components and “auto route” components. Of the 1,200 mi length of the Anza NHT from Nogales, Arizona, to San Francisco, California, 161 mi are components that cross federal lands. The historic route enters Riverside County from the south via Coyote Canyon, crosses the Cahuilla Indian Reservation, and descends to the Hemet/San Jacinto area via Bautista Canyon. The route follows the San Jacinto River to Mystic Lake, then through the Bernasconi Pass near Perris Lake State Recreation Area, passes through March Air Force Base to enter the urbanized area of Riverside today. It crosses the Santa Ana River and proceeds westerly through Pedley toward Mission San Gabriel (NPS1996: C-17).

The only trail component through a national forest is the 8 mi segment of Bautista Canyon Road that passes through the SBNF (i.e., the location of the proposed project). Here, the Anza NHT consists of a designated auto route (marked) but no recreational trail. Because this currently unpaved section of the trail route crosses federal lands in an area that is little changed from the 1774-1776 landscape that Anza's expeditions traversed, it has been identified as 1 of 17 "high-potential" segments "to interpret the trail's historical significance and to provide opportunities for high-quality recreation" (NPS 1996: 1-2, 20-23).

Implementation of Alternatives A, B, or C would have temporary and permanent effects on the Anza NHT. The roadway would be temporarily closed for up to 16 months during construction under all the build alternatives. Thus, access to the NHT auto route would be restricted. The impact would be temporary and occur only during construction.

Although paving of this segment of the roadway would reduce the rustic characteristic of the roadway, reconstruction and paving of the roadway should not diminish the ability to interpret the trail's historical significance. The 13.2 km (8.2 mi) segment of Anza NHT is also an historic travel and auto route through Bautista Canyon. The improved roadway would provide a safer route for all users. It would increase the opportunity for more recreational users to access the canyon and experience the historic landscape that is relatively unchanged since the early explorations of the 1700s, although the proposed project will introduce some visual changes. All the build alternatives also propose a 0.1 ha (0.3 ac) interpretive overlook area on a point overlooking Bautista Canyon that would provide an opportunity for all users to have a panoramic view of the canyon and learn more about the historic use of the canyon.

Alessandro Trail

The Alessandro Trail is a 24 km (15 mi) trail that begins at the top of Tripp Flats, just north of the Tripp Flats Forest Service Station at an elevation of approximately 1,200 m (4,000 ft) and approximately 1.6 km (1 mi) from Bautista Canyon Road. The trail proceeds down toward Bautista Creek and the CDC Bautista Conservation Camp at Bautista Canyon Road. OHV users mainly use this trail. The trailhead does not have a designated parking area. Trail users typically park along the roadside or in a small (one to two cars) dirt area that currently exists at the trailhead.

Implementation of Alternatives A, B, and C would have a beneficial effect for Alessandro Trail users under all these build alternatives. The proposed build alternatives would include construction of a 0.1 ha (0.3 ac) OHV trailhead pullout at the Alessandro Trailhead. This facility would be surfaced with decomposed granite and sized to accommodate approximately five vehicles and trailers. A small informational bulletin board is also proposed. The proposed parking area would improve user safety by minimizing conflicts between users loading/unloading OHV equipment and other motorists traveling on the roadway. Improved access to OHV and hiking areas within the SBNF may increase the number of users. While use of the area may change as a result of the project, no significant adverse impacts are anticipated.

Bautista Canyon Archaeological District

A total of 15 prehistoric and protohistoric (i.e., resources associated with early Native American occupation) archaeological resources would be affected by the proposed project. Each is eligible for listing in the NRHP under Criterion (d) of Section106 of the NHPA because they have the potential to yield information important to prehistory or history. The archaeological resources of the canyon as a whole have generally good integrity, and the overall pattern of aboriginal land use remains intact (SRI 2003).

The pattern of prehistoric and protohistoric archaeological sties, along with specific and general plant collection areas important in Native American cultural traditions, reflects Native American use of a landscape that retains integrity of location, setting, materials, feeling, and association that is hardly altered from its period of significance. Therefore, the prehistoric and protohistoric sites recorded in the archaeological studies for this project, along with several previously recorded archaeological sites (RIV-1889, RIV-3090, RIV-3091, and RIV-3092) immediately adjoining the study area in the CDC Bautista Conservation Camp, are considered elements of an archaeological district. Implementation of Alternatives A, B, and C could cause direct physical destruction or damage to seven archaeological sites.

Anza NHT Historic Transportation Corridor

Bautista Canyon Road is a historical-period cultural resource in its own right, having been constructed during 1914-1917, and a portion of an apparent earlier alignment may date to the 1890's. These two historic period sites are eligible for listing under Criteria (a) and (b) of the NHPA because of their association with events and persons that have made significant contributions to history. Because the historic landscape of Bautista Canyon is virtually intact and possesses integrity of setting, feeling, and association, sites BC-23 and BC-22 are considered contributing elements of a larger historic transportation corridor (Anza NHT). The period of significance for Bautista Canyon Road extends from 1774-1917 and is considered significant at a local, state, and national level, while the period of significance for the earlier alignment extends from 1890-1925 and is considered significant at the local level. The historic transportation corridor is a dynamic cultural feature evolving from prehistoric Native American use, passage of the Anza expedition, use by cattlemen to move stock from the valley to mountain pastures, use as a wagon road, and later improved to an automobile road.

Each build alternative would result in an adverse effect to the historic transportation corridor due to visual impacts to the historic landscape. Paving of this segment of the roadway would also reduce the rustic characteristic of the roadway.

Bautista Canyon Traditional Cultural Property (TCP)

The ethnobotanical resource of the canyon, including basketry material collecting locations, and the ethnographical landscape that contains them, and the associated prehistoric and protohistoric archaeological resources, are important in maintaining the cultural identity of the local Cahuilla people and other traditional practitioners. The Cahuilla have historically and still use numerous plants for food, medicine, construction, and utilitarian purposes. The Cahuilla and other tribes in the area value the isolated setting and serenity with the low traffic volume that exists in Bautista Canyon, where prayers are said before they collect plants. Tribal members often come to Bautista Canyon to collect plants. The unpaved segment of Bautista Canyon Road is located mainly along the bottom of the canyon near Bautista Creek, which provides convenient access to plant collecting areas.

The canyon is considered to be eligible for listing in the NRHP as a TCP under Criterion (c) of the NHPA. The boundaries of the TCP minimally include the study corridor for the ethnobotanical study (i.e., 500 m [1,640 ft]) on each side of the road for the length of the proposed project). Although Native Americans consulted during the course of cultural resources studies consider the TCP to include the entire canyon, it is not feasible to define the boundaries beyond the area investigated.

Access changes associated with implementation of Alternative A, B, or C would result in adverse effects to plant collecting areas. Changes in the road's alignment would create new accessible areas, while reducing access to existing accessible areas. All of the build alternatives would result in higher speeds, grade changes, and steep embankment slopes that would make it more difficult for traditional practitioners to pull off the road and/or access some plant areas. The proposed build alternatives would introduce noise and visual intrusions that may affect the serenity currently associated with plant gathering in Bautista Canyon, thus diminishing the integrity of the setting, feeling, and association of the TCP. The proposed alternatives would also add increased traffic through the canyon.

A LIST OF OTHER ACTIONS REQUIRED FOR THE PROPOSED ACTION

Discretionary Actions

The Bautista Canyon Road Project is a California FH located within the SBNF in the County of Riverside. The highway is also designated as Riverside County Road (CR) S5019, Sections B and C, and the County of Riverside is responsible for maintaining the roadway, through an easement granted by the USDAFS. The project would require a Record of Decision by the FHWA and project approval and Final EIR certification by the Riverside County Board of Supervisors. Other discretionary permits, approvals, and agency notification requirements associated with implementation of the proposed Bautista Canyon Road Project are described below. Additional information regarding permitting requirements is provided throughout this Draft EIS/EIR as part of the discussion of specific environmental issues.

Approvals and Permits Required

The EIS/EIR document must include a list of the related environmental review and consultation requirements, permits, licenses, and other approvals required by federal, state, or local laws, regulations, or policies. Table S-1 lists the permits and approvals required for the proposed action.

Table S-1
Key Approvals and Permits

Project Authority/ Requiring Authorization	Authorizing Agency	Authority	Permit/Approval
Discharge of Fill Material into "Waters of U.S."	U.S. Army Corps of Engineers	Clean Water Act; Section 10 of the Rivers and Harbors Act	Section 404 Permit
Discharge of Pollutants into "Waters of U.S."	Santa Ana Regional Water Quality Control Board	Clean Water Act; Sections 401 and 402	Water Quality Certification and National Pollution Discharge Elimination System (NPDES) permit
Effects to Threatened or Endangered Species	U.S. Fish and Wildlife Service	Federal Endangered Species Act	Biological Opinion (BO)
Effects to Historic Properties	California State Historic Preservation Officer (SHPO)	Section 106 of the National Historic Preservation Act	Review by SHPO
Unlawful Taking of Migratory birds	U.S. Fish and Wildlife Service	Migratory Bird Treaty Act	A depredation permit may be required
Lake or Streambed Alteration Program	California Department of Fish and Game	Fish and Game Code, Section 1600 Protection and Conservation of Fish and Wildlife Resources	Section 1601 agreement
Relocation of Utility Poles	U.S. Department of Agriculture-Forest Service (USDAFS)	Existing Special Use Permit	Modify existing Special Use Permit

Environmental Effects and Mitigation Measures

Table S-2 provides a comparison summary of the effects and mitigation measures of the project alternatives.

Table S-2
Impact Analysis and Mitigation Measure Summary

Issue Area	Issues and Effects	Mitigation Measures
Socioeconomics/Environmental Justice	**Alternatives A, B, and C.** The temporary increase in truck traffic poses a safety concern for children crossing at the Fairview Avenue and Mayberry Avenue crosswalk during construction.	**Alternatives A, B, and C**. Placement of a crossing guard is proposed at the intersection of Fairview Avenue and Mayberry Street during project construction to increase the safety of children who cross the street(s) on their way to and from school. Therefore, no mitigation measures are proposed.
Air Quality	**Alternatives A, B, and C.** Short-term increases in emissions would occur during construction. Operation of the proposed project would have a positive effect on air quality. **Alternative D.** Under the No Action alternative, improvements to Bautista Canyon Road would not occur. An alternate faster and shorter route would not be available to link Valle Vista and Anza. Therefore, air quality benefits would not occur. Implementation of this alternative would also not be consistent with SBNF and SCAG regional air quality goals. Fugitive dust from the unpaved roadway segment would continue in the long term. Existing emissions exceed the 68 kg (150 pounds)/day threshold.	**Alternatives A, B, and C.** To reduce vehicle exhaust during construction: • The construction contractor shall maintain construction equipment engines by keeping them tuned in accordance with manufacturers' specifications. • The construction contractor shall use only California diesel fuel in heavy-duty vehicles. The construction contractor shall comply with SCAQMD's Rule 403 requirements for fugitive dust. **Alternative D.** Significant and unmitigable long-term air quality impact.
Noise	**Alternatives A, B, and C.** Noise levels are anticipated to exceed the abatement criteria in the southern portion of the study area. The southern segment of Bautista Canyon is currently the least traveled portion of the study area and as noted, the impact is a result of increased sound energy from additional vehicle pass by events during the peak travel hour.	**Alternatives A, B, and C.** Noise barriers are most effective in urban areas where development densities make them feasible from an engineering and cost perspective. This would not be a feasible mitigation measure because the receptor is approximately 200 feet from the roadway and noise levels after the project would remain typical of rural residential areas. No other feasible mitigation is proposed.
Biological Resources	**Alternative A.** **Botanical Resources** - a total of 22.4 ha (55.4 ac) of direct impact would result, which includes 13.5 ha (33.3 ac) of permanent roadway effects and 8.9 ha (22.1 ac) of temporary roadway effects. **Zoological Resources** - a total impact of 7.8 ha (19.2 ac) to chaparral	**Alternatives A, B, and C.** **Upland Habitat Compensation Program** - cut and fill slopes adjacent to the roadway (excluding blasted rock slopes and cut slopes steeper than a 1:1.5 [V:H] ratio) and construction staging areas would be revegetated according to the Bautista Canyon Road Revegetation Plan. Temporary effects to plant communities

Table S-2 (continued)
Impact Analysis and Mitigation Measure Summary

Issue Area	Issues and Effects	Mitigation Measures
	habitats, 0.6 ha (1.5 ac) of upland scrub habitat, and 0.05 ha (0.13 ac) of riparian habitat would result. **Regulated Waterways, Wetlands, and Riparian Areas** - a total impact of 0.13 ha (0.32 ac) of USACE jurisdictional non-wetland waters of the U.S. and a total impact of 0.13 ha (0.33 ac) of USACE jurisdictional wetlands would result. A total impact of 0.38 ha (0.94 ac) of CDFG jurisdictional riparian habitat and a total impact of 0.26 ha (0.65 ac) to jurisdictional waters and wetlands would result. **Quino Checkerspot Butterfly** - direct impacts to 0.6 ha (1.4 ac) of occupied foraging habitat (vegetated) and 3.9 ha (9.6 ac) of potential suitable habitat within the study corridor (vegetated) would result. **Arroyo Toad** - direct impacts to 2.3 ha (5.7 ac) of occupied upland habitat would result. Approximately 3.5 ha (8.7 ac) of the previously designated Critical Habitat for the arroyo toad would be affected. Toad mortality due to an increase in traffic speed and volume in the vicinity of Hixon Trail would result. **Southwestern Willow Flycatcher** - direct impacts to 0.4 ha (1.1 ac) of suitable riparian habitat would result. **Alternative B.** **Botanical Resources** - a total impact of 23.1 ha (57.1 ac) direct effects to plant communities, which include 13.8 ha (34.1 ac) of permanent effects and 9.3 ha (23.0 ac) of temporary effects. **Zoological Resources** - a total impact of 8.8 ha (21.7 ac) to chaparral habitats, 0.6 ha (1.5 ac) of upland scrub habitat, and 0.05 ha (0.13 ac) of riparian habitat would result. **Regulated Waterways, Wetlands, and Riparian Areas** - a total impact of 0.15 ha (0.38 ac) of USACE jurisdictional non-wetland waters of the U.S. and a total of 0.07 ha (0.18 ac) of USACE jurisdictional wetlands. Total impact to jurisdictional waters and wetlands would be approximately 0.22 ha (0.54 ac). A total impact of 0.31 ha (0.76 ac) to CDFG jurisdictional riparian habitat and unvegetated CDFG jurisdictional waterways would result. **Quino Checkerspot Butterfly** – impacts to 0.6 ha (1.4 ac) of habitat (vegetated) in the vicinity of the observed Quino checkerspot colony and 4.2 ha (10.3 ac) of potential suitable habitat within the study corridor (vegetated) of the Quino checkerspot butterfly would result.	would be mitigated at approximately a 1:1 ratio. **Wetland Habitat Compensation Program** - permanent effects would be mitigated through wetland creation at a 1:1 ratio (no-net-loss) and through wetland restoration or enhancement at a 1:1 ratio. **Bautista Canyon Road Landscape and Revegetation Plan** - shall provide recommendations for implementing the habitat compensation program and would include site preparation, seed and plant materials, monitoring and maintenance, irrigation, and development of performance criteria for chaparral, big sagebrush scrub, and riparian communities. **General Conservation Measures:** • A qualified biological monitor(s) having local experience with the biological resources of Bautista Canyon would be retained to oversee and monitor all construction activities occurring adjacent to areas occupied by listed species. If multiple segments of the corridor are concurrently under construction, multiple biological monitors may be necessary. • The FHWA would hold preconstruction meetings to brief contractors on the location of sensitive resources and construction boundaries. • The biological monitor would ensure that environmental fencing marking the limits of work is appropriately placed to avoid accidental effects and protect listed species or their habitat and that it remains in good condition for the duration of the project. • All construction equipment shall be fueled and maintained at least 30.5 m (100 ft) from the nearest wetland or waters of the U.S. in designated staging areas with proper drip containment measures. • The biological monitor would document in monthly construction reports all cases where construction has directly affected occupied listed species habitat or an individual of a listed species. Appropriate corrective actions would be recommended in these reports and the reports would be forwarded to the wildlife agencies.

Table S-2 (continued)
Impact Analysis and Mitigation Measure Summary

Issue Area	Issues and Effects	Mitigation Measures
Biological Resources (continued)	**Arroyo Toad** - impacts to 2.4 ha (5.9 ac) of occupied upland habitat and 3.7 ha (9.1 ac) of vegetated habitat previously designated as Critical Habitat would result. **Southwestern Willow Flycatcher** - direct effects to 0.4 ha (0.9 ac) of occupied riparian habitat would result. **Alternative C.** **Botanical Resources** - a total of 22.3 ha (55.1 ac) of direct impact, which includes 13.2 ha (32.6 ac) of permanent roadway effects and 9.1 ha (22.5 ac) of temporary roadway effects would result. **Zoological Resources** - a total impact of 7.77 ha (19.2 ac) to chaparral habitats, 0.61 ha (1.50 ac) of upland scrub habitat, and 0.03 ha (0.08 ac) of riparian habitat would result. **Regulated Waterways, Wetlands, and Riparian Areas** - a total impact of 0.14 ha (0.35 ac) of USACE jurisdictional non-wetland waters of the U.S. and a total impact of 0.13 ha (0.32 ac) of USACE jurisdictional wetlands. Total impact to jurisdictional waters and wetlands would be approximately 0.27 ha (0.67 ac). A total impact of 0.21 ha (0.51 ac) of CDFG jurisdictional riparian habitat and unvegetated CDFG jurisdictional waterways would result. **Quino Checkerspot Butterfly** – direct impacts to 0.5 ha (1.3 ac) of habitat (vegetated) in the vicinity of the observed Quino checkerspot colony and 4.2 ha (10.3 ac) of potential suitable habitat within the study corridor (vegetated) of the Quino checkerspot butterfly would result. **Arroyo Toad** - direct impacts to 2.6 ha (6.5 ac) of occupied upland habitat and 3.9 ha (9.6 ac) of vegetated habitat previously designated as Critical Habitat for the arroyo toad would result. **Southwestern Willow Flycatcher** – direct impacts to 0.3 ha (0.7 ac) to occupied riparian habitat of the southwestern willow flycatcher would result.	• Unanticipated temporary damage to listed species habitat and wetlands during construction shall be restored to predisturbance habitat conditions. The appropriate enhancement shall be recommended by the biological monitor and approved by the USDAFS in coordination with the USFWS and FHWA. • Permanent loss of listed species habitat would be compensated for based on the resource affected according to the procedures identified in this section. • Compliance would be required with federal, state, and local regulations pertaining to hazardous waste and substances, and oily substances. The contractor would attend an environmental briefing and provide a list of the types, quantities, and use of hazardous materials brought onto the site and the types and quantities of wastes/wastewater that might be generated during construction. • Appropriate BMPs shall be used such as diversion ditches, benches, berms, silt fences, and straw bales to retard and divert runoff to protected drainage courses and protect water quality during and after construction. **Resource Specific Conservation Measures** Quino Checkerspot Butterfly • The improvement alternatives have been centered on the existing roadway in the vicinity of the known occupied habitat of the study corridor to reduce impact to natural vegetation in this area. • Direct permanent loss of suitable habitat would be compensated through the habitat compensation measures described in section 3.6. • Seed mixes to be developed for the final revegetation plan for this project should include host and nectaring plant species used by the Quino checkerspot butterfly, including dot-seed plantain and owl's clover.

Table S-2 (continued)
Impact Analysis and Mitigation Measure Summary

Issue Area	Issues and Effects	Mitigation Measures
		Arroyo Toad • Construction in the northernmost 2.4 km (1.5 mi) of the study corridor (downstream section) would occur outside of the toad-breeding season (15 March through 15 August) to avoid effects to breeding toads, eggs, tadpoles, and maturing juveniles. This would also avoid effects to the designated Critical Habitat during the breeding season.
		Southwestern Willow Flycatcher • Construction activities resulting in excessive noise (e.g., rock blasting) within 0.4 km (0.25 mi) of the known breeding territory would occur outside of the breeding season (considered to occur from 15 March to 31 August) to avoid construction noise effects to nesting birds. • The proposed design would relocate the Bautista Canyon Road centerline between 72 and 89 m (236 and 292 ft) away from the species point location in the vicinity of Tripp Flats. This would act to mitigate any permanent indirect effects of increased traffic noise generation from the new roadway on this known breeding territory. • Direct permanent loss of occupied riparian habitat would be compensated through the habitat compensation measures described in section 3.6. Habitat Connectivity and Wildlife Movement • The project design includes a bridge at the main Bautista Creek crossing. This design will remove the effects of the existing dirt road crossing and enhance wildlife movement at this location. • The project design includes a large, oversized box culvert at the Tripp Flats crossing. This design will allow for improved wildlife movement at this location. • The design team has included provisions for wildlife movement at the following locations: • Station 312+215 (Existing horseshoe bend west of the Bautista Crossing) The Bridge at Bautista Creek Station 320+440 (The base of the existing switchbacks) Station 324+532 (145 m north of Tripp Flats Road) Station 324+680 (Tripp Flats Road)

Table S-2 (continued)
Impact Analysis and Mitigation Measure Summary

Issue Area	Issues and Effects	Mitigation Measures
		• In general, the project has been designed to reduce the overall right-of-way corridor width through using steep cut and fill slopes. This reduces the overall impact acreage and minimizes the effects on habitat connectivity. • Other measures such as wildlife crossing signs and deer reflectors will be used at appropriate locations along the improved roadway to minimize the effect of the project on wildlife movement. <u>Other Specific Measures</u> • BMPs will be used during construction of the roadway to avoid and minimize erosion and sedimentation. A Storm Water Pollution Prevention Plan (SWPPP) will be developed that defines BMPs to be implemented during construction of the project to avoid and minimize these effects. • Preconstruction surveys for slender-horned spineflower would be conducted during the appropriate time of year in appropriate areas of the study corridor prior to construction to ensure this species would not be impacted by the project. Avoidance or relocation measures may be necessary if the species is located within the study corridor during these surveys. • Preconstruction raptor nest surveys would be conducted. Construction personnel would be informed of the general location of any raptor nests found and would be directed to avoid these locations to the maximum extent possible.
Hydrology/Water Resources	**<u>Alternatives A, B, and C.</u>** During storm events, erosion and sedimentation effects could occur. Proposed construction activities could also result in short-term effects to local water quality through accidental direct or indirect discharge of hazardous materials such as vehicle fuels, lubricants and chemicals (i.e., herbicides, etc.) into drainage courses.	**<u>Alternatives A, B, and C.</u>** • A Conceptual Landscape and Revegetation Plan has been prepared and an erosion control plan would be prepared to reduce erosion and sedimentation from disturbed areas and cut and fill slopes. Additionally, all applicable requirements of the NPDES Program in effect at the time of project construction would be implemented to the satisfaction of the County of Riverside Transportation and Land Management Agency.

Table S-2 (continued)
Impact Analysis and Mitigation Measure Summary

Issue Area	Issues and Effects	Mitigation Measures
Hydrology/Water Resources (continued)		• Prior to the issuance of any construction or grading permit and/or the commencement of any clearing, grading, and excavation, a SWPPP would be prepared and submitted for approval to the Riverside County Transportation and Land Management Agency pursuant to County Ordinance No. 754.1. BMPs will be implemented during site grading and construction as part of the SWPPP.
	<u>Alternative D</u>. The unpaved segment of Bautista Canyon Road would continue to erode adding higher sediment levels to Bautista Creek during storm events compared to the proposed paved segment. Flood hazards would continue in portions of Bautista Creek, thus exposing people to risk from flood waters, mud flows, or other direct and indirect effects associated with storm water runoff.	**<u>Alternative D:</u>** No mitigation is proposed.
Cultural Resources	**<u>Alternatives A, B, and C.</u>** The historic properties that make up the archaeological district and TCP would be adversely affected. The historic properties that may be subject to physical destruction or damage include sites BC-7, BC-9, BC-4, BC-13, BC-3, BC-16, BC-1, BC-22, and BC-23, all of which are located completely or partially with the area of potential effects (APE) for archaeological resources. Sites outside the direct APE such as RIV-3092 also may be subject to indirect effects.	**<u>Alternatives A, B, and C.</u>** • In consultation with Native American Tribes, SBNF, NPS, SHPO, and the Advisory Council on Historic Preservation, prepare a Memorandum of Agreement (MOA) according to the provisions of the NHPA (36 CFR 800.6). • The MOA should contain provisions for FHWA and the County to prepare and implement mitigation measure for archaeological sites subject to direct adverse effects. The measures should address data recovery from imperiled features and cultural deposits in affected site areas, archaeological monitoring of sensitive areas for unanticipated discoveries during construction, Native American monitoring of project-related archaeological activities, and curation of all recovered cultural materials in a federally approved repository.
	Plant-collecting areas will be affected by access changes and higher speeds along the roadway. This would make it more difficult for traditional practitioners to pull off the road to collect plant materials. The project would also introduce noise and visual intrusions that will affect the serenity currently associated with plant gathering in Bautista Canyon, thus diminishing the integrity of the setting, feeling, and association of the TCP.	• The MOA also should address issues of protecting archaeological sites and collecting areas for basketry materials from degradation by unauthorized uses, while providing for access to qualified researchers, traditional practitioners, and agency staff. • Any revegetation plan or visual treatment plan for the project should be prepared and implemented in consultation with traditional practitioners and designed to enhance the growth and distribution of desirable species and minimize changes in the canyon setting of the project.

Table S-2 (continued)
Impact Analysis and Mitigation Measure Summary

Issue Area	Issues and Effects	Mitigation Measures
	Potential adverse effects to human remains interred outside of formal cemeteries could occur during site excavation and grading.	• If human remains are discovered, work shall halt in that area and procedures set forth in the California Resources Code (§ 5097.98) and State Health and Safety Code (§ 7050.5) shall be followed by the archaeological monitor after notification to the County Coroner by the FHWA project engineer. If Native American remains are present, the County Coroner shall contact the Native American Heritage Commission to designate a Most Likely Descendant, who will arrange for the dignified disposition and treatment of the remains. Ground disturbing activities shall be allowed to resume in the area of discover upon completion of the above requirement, to the satisfaction of the FHWA project engineer.
	<u>Alternative D</u>. Degradation of historic sites by unauthorized users would continue to occur, as would ongoing erosion and disturbance from grading during road maintenanc	**<u>Alternative D.</u>** Significant and unmitigable.
Hazardous Materials	**<u>Alternatives A, B, and C</u>.** Although there was no documentation of unauthorized releases or of existing hazardous substances or petroleum product contamination at the project site, the evidence observed indicates the potential for contamination from hydrocarbons.	**<u>Alternatives A, B, and C.</u>** Additional soil sampling and analysis in areas where staining and burning and petroleum product release were observed would be required prior to the commencement of excavation and grading operations in order to reduce potential contamination from hydrocarbons and a potential hazard to construction personnel during excavation and grading.
Visual Resources	**<u>Alternatives A, B, and C</u>**. Proposed construction could substantially degrade the existing visual character or quality of the site and its surroundings. The proposed road would dominate the existing landscape in all aspects including form, line, color, and texture and it would change the landscape character of the canyon.	**<u>Alternatives A, B, and C.</u>** • Implement an Erosion Control and Revegetation plan for all soil disturbances, including road cuts and road fills. Use the existing landscape vegetation as a seed source for reseeding. • Colorize the largest and most visible exposed rock surfaces (cut slopes too steep to revegetate) with Permeon or other types of aging chemicals to soften the color contrast of the exposed rock and reduce the visual impact. • Blend fills into the natural contours, rather than leave them as flat faces. • Round cut edges back to the natural slope and revegetate exposed slopes. • Stain or paint materials such as wood or steel used for signposts or safety railing with colors that are not shiny and that complement the surrounding landscape.

Table S-2 (continued)
Impact Analysis and Mitigation Measure Summary

Issue Area	Issues and Effects	Mitigation Measures
Visual Resources (continued)		• Construct guardrails with metal rails of "self weathering steel," or galvanized steel guardrails.
Recreation	**<u>Alternatives A, B, and C.</u>** Construction would require temporary closure of the Anza NHT auto route.	**<u>Alternatives A, B, and C.</u>** The FHWA recommends signing an alternate route using SH 371 and/or 74. Specific details would be determined during consultation with the NPS.
Soils/Geology	**<u>Alternatives A, B, and C.</u>** Construction could result in significant soil erosion effects. . Surface mapping of soil and rock conditions along the northern and central segments of the proposed project, indicated that excavation could be problematic along the proposed alignments. Dense silty sands with boulder material would be encountered in the northern portion of the project area, along with possible mixed cut slope conditions (alluvium and outcropping rock). Scaling and possibly spot bolting will be critical elements in arriving at stable rock cuts along Bautista Canyon.	**<u>Alternatives A, B, and C.</u>** • Detailed surface geologic structure mapping shall be required prior to project approval at additional locations along the central portion of the project area, and on the limited rock outcrop exposures along the southern canyon section. • Following field mapping and data analyses, final design recommendations shall be developed for large rock cuts, including recommendations for rock mass stabilization. • Topsoil locations and stripping depths shall be determined with the assistance of USDAFS personnel prior to project excavation. • Bridge foundation recommendations shall build on the seismic information acquired to date and additional pier borings, recommended in the Interim Geotechnical Investigation Report. Box culvert bearing capacities shall also be developed. • All cut slopes shall be observed during grading as directed by a geotechnical engineer to ensure conformity with anticipated subsurface conditions. • Material density measurements shall be conducted to arrive at more accurate shrink-swell values for the proposed project prior to project approval. • Special Contract Requirements (SCR) shall also be prepared following completion of the final cut slope, fill slope, and structure foundation designs prior to project approval.

Table S-2 (continued)
Impact Analysis and Mitigation Measure Summary

Issue Area	Issues and Effects	Mitigation Measures
Fire Hazard and Risk	**<u>Alternative D.</u>** Fire and sheriff emergency vehicles using the roadway would continue to have slow response times.	**<u>Alternative D.</u>** Significant and unmitigable.
Section 4(f)	**<u>Juan Bautista de Anza National Historic Trail</u>** Implementation of Alternatives A, B, or C would cause the Anza NHT to be temporarily closed for up to 16 months during construction under all the build alternatives. Visually, each build alternative for the proposed road would change the landscape character of the canyon. Paving of this segment of the roadway would also reduce the rustic characteristic of the roadway.	The visual effect of large fills can be reduced with appropriate revegetation. The proposed design minimizes cut and fill slopes; thus, reducing the project's footprint and the amount of new disturbance. All disturbed areas and abandoned road segments would be revegetated with plant species native to the canyon where possible. On steeper slopes and rock faces, rock coloring would be used to minimize visual effects. To minimize effects associated with the temporary closure of the Anza NHT auto route, the FHWA recommends signing an alternate route using SH 371 and/or 74. Specific details would be determined during consultation with the NPS.
	<u>Alessandro Trail</u> Implementation of Alternatives A, B, and C would have a beneficial effect for Alessandro Trail users. The proposed build alternatives would include construction of an OHV trailhead pullout at the Alessandro Trailhead. A small informational bulletin board is also proposed. The proposed parking area would improve user safety by minimizing conflicts between users loading/unloading OHV equipment and other motorists traveling on the roadway. Improved access to OHV and hiking areas within the SBNF may increase the number of users. While use of the area may change as a result of the project, no significant adverse impacts are anticipated.	All disturbed areas adjacent to the trailhead would be revegetated with appropriate seed mixes corresponding to the adjacent plant community. Construction of the OHV pullout at the Alessandro Trailhead would compensate for any changes in use.
	<u>Archaeological Resources and TCP Resources</u> Implementation of Alternatives A, B, and C could cause direct physical destruction or damage to archaeological sites during excavation and grading of the project. Access changes associated with implementation of Alternative A, B, or C would result in adverse effects to plant collecting areas. All of the build alternatives would result in higher speeds, grade changes, and steep embankment slopes that would make it more difficult for traditional practitioners to pull off the road and/or access some plant areas. The proposed build alternatives would introduce noise and visual intrusions that may affect the serenity currently associated with plant gathering in Bautista Canyon, thus diminishing the integrity of the setting, feeling, and association of the TCP. The proposed alternatives would also add increased traffic through the canyon.	• In consultation with Native American Tribes, SBNF, NPS, SHPO, and the Advisory Council on Historic Preservation, prepare a Memorandum of Agreement (MOA) according to the provisions of the NHPA (36 CFR 800.6). • Any revegetation plan or visual treatment plan for the project should be prepared and implemented in consultation with traditional practitioners and designed to enhance the growth and distribution of desirable species and minimize changes in the canyon setting of the project.

1.0 INTRODUCTION

1.1 History and Background

The Federal Highway Administration (FHWA), Central Federal Lands Highway Division (CFLHD), in cooperation with the U.S. Department of Agriculture Forest Service (USDAFS), the California Department of Transportation (Caltrans), and the County of Riverside, is developing a project to improve a 13.2-kilometer (km) (8.2-mile [mi]) unpaved segment of California Forest Highway (FH) 224 (Bautista Canyon Road) in unincorporated Riverside County, California.

Bautista Canyon Road is 34.9 km (21.7 mi) in total length and was originally constructed in the 1940s as a link between the community of Valle Vista, located at the northern terminus, and the community of Anza, located just east of the southern terminus at State Highway (SH) 371. The southern segment of the roadway, from SH 371 north 3.2 km (2 mi), was paved in 1977. The segment's northernmost 16.3 km (10.3 mi) was paved in 1987. In 1988, an additional 1.9 km (1.2 mi) segment near the southern terminus was paved (see Figures 1.3-1 and 1.3-2, Section 1.3.1). Bautista Canyon Road currently provides access to a portion of the San Bernardino National Forest (SBNF). In addition to its use as a public transportation corridor, Bautista Canyon Road is used by SBNF staff for administrative and maintenance purposes.

The unpaved 13.2 km (8.2 mi) section currently contains many design and operational deficiencies that compromise safe and efficient use of the road and prevents completion of the transportation system link between Valle Vista and Anza. Additionally, the road passes through the Bautista Creek bed and crosses numerous other drainages. This can render the road impassible during high flow events. Further, the road surface is rough and washboarded, and requires regular maintenance. These and other factors contributed to a determination by the County of Riverside and the USDAFS that the roadway be reconstructed to current design standards to provide a safe and reliable route of travel and improved access to the SBNF. Consequently, the County of Riverside and the USDAFS proposed this improvement be programmed and funded through the FH portion of the Federal Lands Highway Program (FLHP).

The FH portion of the FLHP allocates funding for transportation projects which provide access to, within, or adjacent to national forests and that also serve as a link in a state or local highway system. The program is administered separately in each state by a three-agency cooperative consisting of the FHWA, the USDAFS, and the State Department of Transportation (DOT). These agencies, referred to as "Program Agencies," maintain the FH program. Responsibilities include recommending and making decisions concerning improvement projects in each state.

The Program Agencies for the Bautista Canyon Road project are the USDAFS, Caltrans, and the FHWA. The FHWA is the lead federal agency for this project and is responsible for the planning, design, and construction of project improvements. The County of Riverside maintains the road via an easement from the USDAFS, SBNF, and would continue to maintain the road after proposed improvements are made. Thus, the County of Riverside is the local lead agency.

During the 9 November 1993 California program meeting, the Program Agencies recommended that reconnaissance and scoping be completed for the proposed project. A reconnaissance and scoping report was prepared in 1994 as a guide for future programming decisions. As a result, proposed improvements to the 13.2 km (8.2 mi) segment of Bautista Canyon Road were placed into the program for funding in Fiscal Year 2005. The purpose of the reconnaissance and scoping report was to aid in the identification of the following:

- existing highway conditions
- purpose and need for improvement
- recommended level of improvement
- limits of the proposed action
- viability of the proposed action

In December 2000, a Social, Economic, and Environmental (SEE) Study Team was established to begin project coordination and development. The SEE Team is comprised of representatives from the FHWA, the USDAFS, and County of Riverside. The function of the SEE Team is to guide the proposal through the project development process and provide a point of contact within each agency through which necessary technical disciplines and individuals may be accessed. The SEE Team initiated public and interagency project scoping, environmental surveys of the project area, and development of a joint Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) and related technical documents required to demonstrate compliance with the National Environmental Policy Act (NEPA), California Environmental Quality Act (CEQA), and applicable environmental regulations.

It is important to note that although the subject study area is defined as the 13.2 km (8.2 mi) unpaved segment of Bautista Canyon Road, the project limits (logical termini) extend the entire length of the roadway from Valle Vista to Anza (Figure 1.3-1). The logical termini were defined consistent with the FHWA memorandum *Guidance on the Development of Project Termini,* 5 November 1993. Logical termini are defined as the rational endpoints for transportation improvement and review of environmental impacts. Using the logical termini approach, environmental review considers potential effects over a broader geographic range rather than focusing only on the specific area of improvement. No roadway improvements are proposed for segments north or south of the study area; however, related project elements and effects, as described in Chapters 2 and 3, could impact resources within the project limits. Thus, for the purpose of this environmental analysis, existing conditions and impacts are discussed for both the study area and, where appropriate, throughout the Bautista Canyon Road corridor.

1.2 Intended Use of the EIS/EIR

NEPA was enacted on 1 January 1970 in response to public demand for environmental protection at the national level. NEPA is the nation's charter for protection of the environment and "contains 'action-forcing' procedures to ensure that federal agency decision-makers take environmental factors into account" (40 Code of Federal Regulations [CFR] § 1500.1). NEPA procedures ensure that environmental information is available to agency officials and citizens before decisions are made and before actions are taken. NEPA accomplishes this through the requirement for federal agencies to prepare an EIS and conduct public involvement when they propose a major federal action that could significantly affect the human environment.

Like NEPA, the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 *et seq.*) requires an Environmental Impact Report (EIR) be prepared to assess the environmental characteristics of an area, determine what effects would result if the area is altered or disturbed by a proposed action, and identify alternatives or other measures to avoid or reduce those effects. State of California environmental review regulations required per CEQA have led to the preparation of a joint EIS/EIR to satisfy both state and federal requirements.

The Bautista Canyon Road Project EIS/EIR is intended to provide local, state, and federal decision-making and reviewing agencies, and the public, with an analysis of potential environmental effects associated with reconstructing the 13.2 km (8.2 mi) unpaved segment of Bautista Canyon Road. Project effects are disclosed in this document, which has been circulated for public review and comment as part of the environmental review process. In addition, public input obtained through a public scoping process has been incorporated into the document.

1.2.1 Lead Agencies

1.2.1.1 Federal Highway Administration

The Central Federal Lands Highway Division of the FHWA is responsible for administering FLHP funds and, as noted, has assumed the role of lead federal agency for the preparation of this EIS/EIR. To administer the FLHP, the FHWA is providing transportation-engineering services for the planning and preliminary design of the project. Selecting the preferred improvement alternative and implementing the project will require a federal action, which will be documented in a Record of Decision (ROD) prepared by the FHWA. A ROD is a written public record explaining why the federal agency has selected a particular course of action and what measures will be implemented to avoid or minimize environmental effects.

The FLHP has programmed funds in Fiscal Year 2005 to improve Bautista Canyon Road. The FHWA would complete the final design and oversee construction, while the FLHP would provide $10 million and fund FHWA oversight. The County of Riverside would be responsible for the construction-funding shortfall from the FLHP-programmed amount, which is now estimated to be $2 million.

1.2.1.2 County of Riverside

State of California environmental review regulations required per CEQA have led to the preparation of a joint EIS/EIR to satisfy both state and federal requirements. As noted in Section 1.2 of this document, like NEPA, CEQA requires an environmental document (i.e., EIR) be prepared to assess the environmental characteristics of an area, determine what effects would result if the area is altered or disturbed by a proposed action, and identify alternatives or other measures to avoid or reduce those effects. Because the County of Riverside is responsible for acquiring right-of-way, relocating utilities, and will continue to be responsible for maintaining the roadway, the County is serving as the CEQA lead agency for the project. The proposed action will require project approval and Final EIR certification by the County of Riverside Board of Supervisors.

1.2.2 Cooperating and Responsible Agencies

NEPA regulations require the lead federal agency request other agencies having special interest or expertise to become cooperating agencies. Additionally, agencies with jurisdiction by law must be requested to become cooperating agencies. The USDAFS and County of Riverside responded affirmatively to FHWA's request and are both considered cooperating agencies under NEPA.

1.2.2.1 U.S. Department of Agriculture Forest Service

Bautista Canyon Road (FH 224) is located in the southwestern portion of the SBNF within the Bautista Management Unit (BMU) of the Soboba Management Area, one of 15 management areas within the SBNF (USDAFS 1989) (see Figure 3.1-1). Management areas were established to aid the USDAFS in implementing the SBNF Land and Resource Management Plan for the forest. The plan was developed to help the USDAFS manage facilities, resources, and activities within the SBNF. As noted, the USDAFS is the major landowner along Bautista Canyon Road. Approximately 16 km (10 mi) of Bautista Canyon Road are within the SBNF. This includes approximately 11.6 km (7.2 mi) of the 13.2 km (8.2 mi) unpaved segment. In 1985, the USDAFS granted the County of Riverside a USDA easement for Bautista Canyon Road to cross USDAFS lands. As noted, a condition of this easement requires the County of Riverside be responsible for maintaining the roadway.

As a cooperating agency with the FHWA and County of Riverside, the USDAFS participated in the document preparation process to ensure their interests were considered during project development. In addition, the USDAFS will be reviewing the proposed action for consistency with the regulations, policies, and guidelines of the SBNF Land and Resource Management Plan.

1.2.3 Permits and Approvals Required

The EIS/EIR document must include a list of related environmental review and consultation requirements, permits, licenses, and other approvals required by federal, state, or local laws, regulations, or policies. Various approvals and permits would be required to implement the proposed action. Table 1.2-1 lists the required permits and approvals. Agencies to which such permit applications are submitted may use the information presented in this EIS/EIR to assist in the application review and decision-making process.

Table 1.2-1
Key Approvals and Permits

Project Authority/ Requiring Authorization	Authorizing Agency	Authority	Permit/Approval
Discharge of Fill Material into "Waters of U.S."	U.S. Army Corps of Engineers (USACE)	Clean Water Act; Section 10 of the Rivers and Harbors Act	Section 404 Permit
Discharge of Pollutants into "Waters of U.S."	Santa Ana Regional Water Quality Control Board (SARWQCB)	Clean Water Act; Sections 401 and 402	Water Quality Certification and National Pollution Discharge Elimination System (NPDES) permit
Effects to Threatened or Endangered Species	U.S. Fish and Wildlife Service (USFWS)	Federal Endangered Species Act	Biological Opinion (BO)
Effects to Historic Properties	California State Historic Preservation Officer (SHPO)	Section 106 of the National Historic Preservation Act	Review by SHPO
Unlawful Taking of Migratory Birds	USFWS	Migratory Bird Treaty Act	A depredation permit may be required
Lake or Streambed Alteration Program	California Department of Fish and Game (CDFG)	Fish and Game Code, Section 1600 Protection and Conservation of Fish and Wildlife Resources	Section 1601 agreement
Relocation of Utility Poles	U.S. Department of Agriculture-Forest Service (USDAFS)	Existing Special Use Permit	Modify existing Special Use Permit

1.2.4 Public Involvement Process

On 12 January 2001, the FHWA published a notice of intent (NOI) in the *Federal Register* advising the public that an EIS would be prepared for the proposed project. To satisfy CEQA requirements, a scoping letter and notice of preparation (NOP) was sent by the County of Riverside on 25 January 2001 to reviewing and responsible agencies, community groups, private citizens, and special interest groups. The NOI, NOP and mailing list is provided in Volume II, Appendix A of this document. Public scoping meetings were held on 30 and 31 January 2001 in Anza and Hemet. The scoping meetings were intended to solicit public comments and help ensure that a full range of issues and alternatives were considered in project development.

A number of letters and comments were received during project scoping. These letters are provided in Volume II, Appendix B of this document. All comments received to date, verbal and written, have been considered in preparing this Draft EIS/EIR. The issues identified through this process requiring detailed study include:

- Biological Resources, Section 3.6
- Cultural Resources, Section 3.8
- Traffic Circulation, Section 3.3
- Visual Resources, Section 3.10
- Drainage/Water Quality, Section 3.7
- Noise, Section 3.5
- Air Quality, Section 3.4
- Recreation, Section 3.11
- Cumulative Effects, Chapter 5
- Growth Inducement, Chapter 6
- Public Health & Safety, Sections 3.7, 3.9, and 3.14

In December 2000, the SEE Team initiated interagency coordination for the project by holding resource-specific scoping meetings with the U.S. Army Corps of Engineers (USACE), California Department of Fish and Game (CDFG), U.S. Fish and Wildlife Service (USFWS), and Santa Ana Regional Water Quality Control Board (SARWQCB). Additional meetings were held as necessary throughout project development and are summarized in Table 1.2-2. In April 2001, the SEE Team held a cultural resource scoping meeting with the National Park Service (NPS), Ramona Band of the Cahuilla Indians, and the Soboba Tribe. Later cultural resource meetings included representatives from the Santa Rosa Reservation, Cahuilla Reservation, and Southern California Indian Basketweavers Organization. Issues raised included concerns regarding sensitive biological and cultural resources and past and ongoing use of the canyon by Native Americans.

Table 1.2-2
SEE Team and Interagency Meetings

Date	Issue Areas	Agency/Interest Group Coordination
December, 2000	Scoping Meeting	USACE, CDFG, USFWS, SARWQCB
April 16, 2001	Scoping Meeting	NPS, Ramona Band of Cahuilla Indians, Soboba Tribe
9 March 2002	Biological and cultural resources	Ramona Band of Cahuilla Indians, Cahuilla Band of Mission Indians, Pechanga Band of Mission Indians, Southern California Indian Basketweavers Organization, Traditional Practitioners, and Santa Rosa representatives
8 May 2002	Utility coordination and biological resources	Anza Electric Cooperative and SBNF
17 July 2002	Utility coordination	Verizon and Anza Electric Cooperative
18 July 2002	Revegetation and aesthetic treatments	SBNF and NPS
3 August 2002	Archaeological and ethnobotanical resources	SBNF, NPS, Santa Rosa representatives, and Cahuilla Band of Mission Indians
16 December 2002	Project field review	SBNF, SRI, Ramona Band of Cahuilla Indians
22 November 2003	Archaeological and ethnobotanical resources	SBNF, Pala, Soboba, Ramona, Santa Rosa representatives, and Cahuilla Band of Mission Indians
2 March 2004	Biological resources	SBNF and USFWS

1.3 Project Location and Setting

1.3.1 Project Location

As noted, Bautista Canyon Road is approximately 34.9 km (21.7 mi) in length and is located between SH 74 and SH 371 (Figures 1.3-1 and 1.3-2) in unincorporated Riverside County. The road is designated as Riverside County Road S5019 (FH 224) and traverses generally from the northwest to the southeast through a portion of the SBNF. The road's functional classification is "rural collector".

1.3.2 Regional Setting

Bautista Canyon Road is located in the central portion of Riverside County, California, approximately 64 km (40 mi) southeast of Los Angeles, within the southern portion of the SBNF and just west of the San Jacinto Mountains. As noted, Bautista Canyon Road traverses through a portion of the BMU within the SBNF. The BMU is bordered on the south and west by Bureau of Land Management (BLM) lands, and on the north and east by Rouse Ridge. The Alessandro and Hixon off-highway vehicle (OHV) trails are located within the project area (Figure 1.3-2). Other types of dispersed recreation (e.g., hiking) also occur in the vicinity. The California Department of Corrections Bautista Conservation Camp, a minimum-security prison facility, is located west of the roadway at the northern terminus of the study area. The USDAFS Tripp Flats Forest Service Station is located approximately 0.8 km (0.5 mi) west of the roadway, approximately 3.7 km (2.3 mi) from the southern terminus of the study area, and is accessed via Tripp Flats Road from Bautista Canyon Road. The Red Mountain Lookout is located on the western boundary of the management area approximately 3.2 km (2 mi) west of the roadway. It is accessed via the Hixon Trail off of Bautista Canyon Road at approximately 3.2 km (2 mi) north of the northern terminus of the project limits (Figure 1-3.2) (USDAFS 1988).

1.4 Purpose and Need

This section identifies and describes the purpose of and need for the proposed action. The purpose and need for the project is based on the condition of the existing roadway, which prevents it from functioning as an efficient link in the Riverside County transportation system. Additionally, the currently unpaved segment of Bautista Canyon Road contains many operational deficiencies that require considerable maintenance and impede reliable and safe use. These issues are further expanded in the following sections.

1.4.1 County of Riverside General Plan, Riverside Extended Mountain Area Plan

The County of Riverside provides guidelines, standards, and policies for future development in the *Riverside County General* Plan (revised April 2002; Public Hearing Draft). The Circulation Element of the plan identifies the transportation circulation network necessary to link all planned facilities and land activities. The plan also provides a framework for creating local area plans based on the input of local citizens and County planning staff. Using this framework, the Riverside Extended Mountain Area Plan (REMAP) was created. The REMAP was developed to address planning issues unique to an 850-square mile portion of rural Riverside County. Bautista Canyon Road is classified as "mountain arterial" in the REMAP and is intended to

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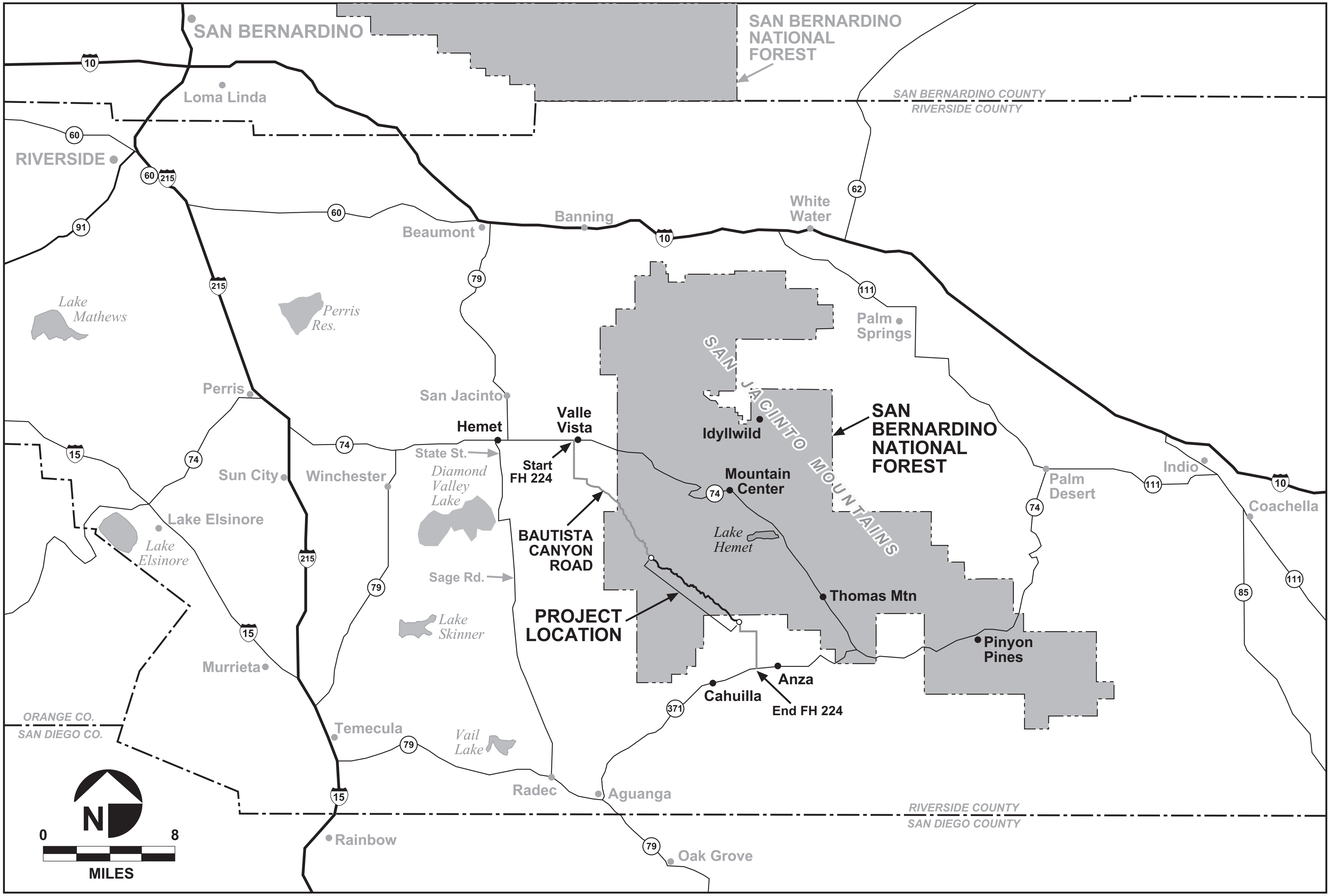

Regional Map

FIGURE 1.3-1

Graphics/Environmental/BautistaCanyonRoad/Regional Map.fh8

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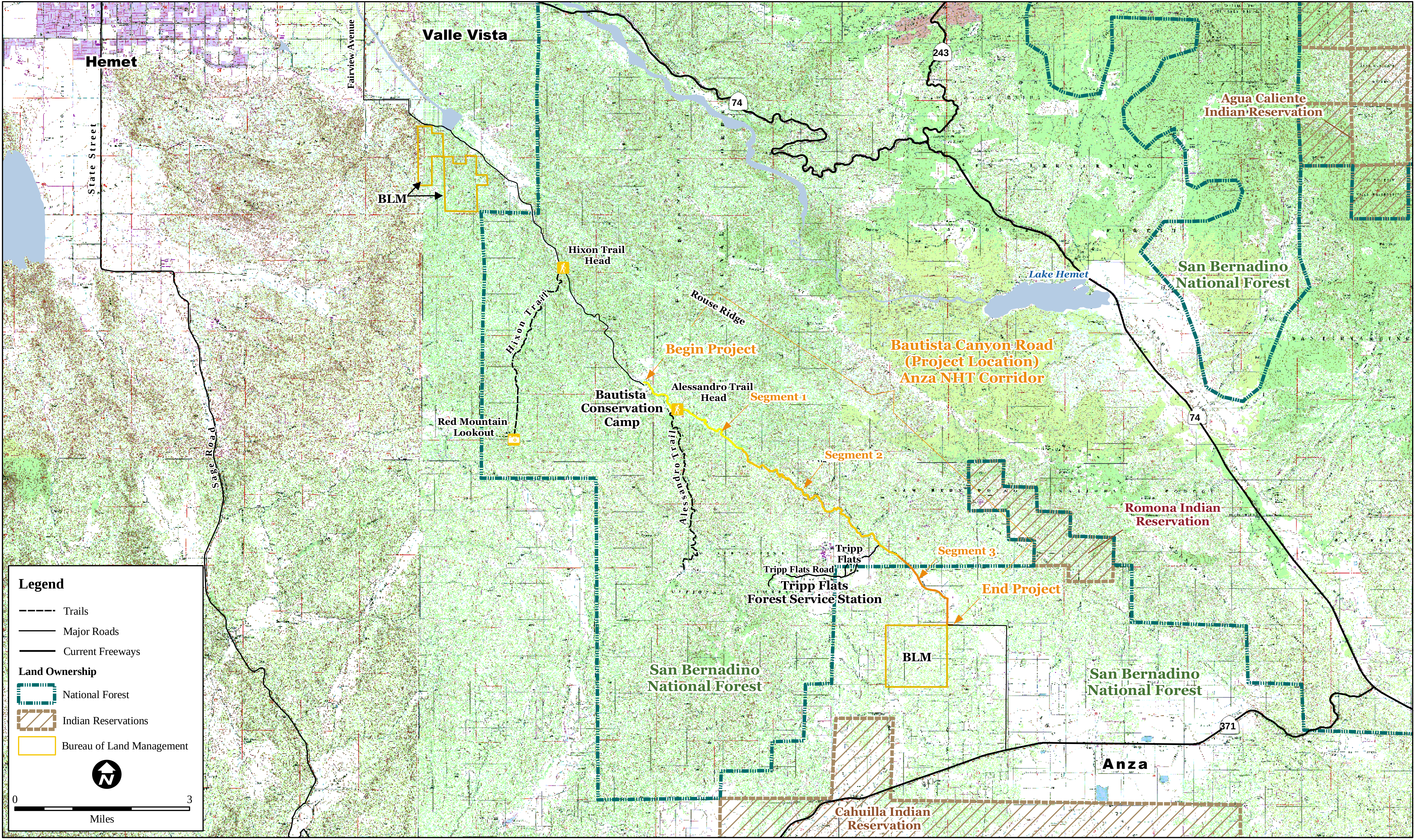

FIGURE

1.3-2

Project Location Map

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serve as a roadway providing intra- and inter-community travel and access to the regional highway and freeway system. The recommended network and circulation classifications are based on the 2020 build-out of planned land use in the 2002 REMAP.

1.4.2 Southern California Association of Governments, Regional Transportation Plan

The Southern California Association of Governments (SCAG) is the regional planning agency responsible for transportation planning and investment decisions for six southern California counties, including the County of Riverside. SCAG's responsibilities include developing a coordinated and cohesive long-range transportation plan that addresses the needs of the greater Los Angeles metropolitan area. SCAG's 2001 Regional Transportation Plan (RTP) provides an assessment of the overall growth and economic trends in the planning region from 2001 to 2025 and identifies key highway and arterial improvement projects necessary to meet the region's projected growth (SCAG 2002).

The SCAG Regional Transportation Improvement Program (RTIP) is a multiyear, multimodal program containing regional transportation improvements for highway, transit and aviation. The RTIP consists of fully funded projects drawn from the RTP. As noted in Section 1.2.1, the FLHP and Riverside County will fund the project. As part of SCAG's assessment process, it was determined that the proposed project is necessary to complete a segment of the regional transportation network. Thus, the proposed project is included in the SCAG RTIP.

1.4.3 Existing Roadway Deficiencies

The existing Bautista Canyon Road was constructed in the 1940s as a link between the communities of Valle Vista to the north and Anza to the south. It no longer adequately serves that function because the current alignment and geometry was not designed for modern vehicular travel. Roadway geometry (roadway crown, superelevation, etc.) is deficient and contains many abrupt, sharp, and inconsistent horizontal curves that limit sight distance. Additionally, the roadway closely follows terrain irregularities, which creates many steep grades and abrupt summits.

The 13.2 km (8.2 mile) unpaved segment is very narrow and is difficult in many places for vehicles traveling in opposite directions to safely pass. The unpaved surface is native soil (decomposed granite) and is in fair to poor condition. The road surface is typically very rough. Vehicles traveling on the roadway generate dust, particularly during dry, windy conditions. This adversely affects air quality and can impair visibility, which further compromises user safety (FHWA 1994).

In its current conditions, the roadway passes through Bautista Creek and several of its tributaries rather than crossing over them on structures. The main creek crossing is hazardous when water is flowing and impassable during severe storm events. These conditions can require temporary road closures. Storm water runoff often flows in the bed of the road increasing the potential for washouts and rockfalls in areas of cut and fill. Further, storm water erodes the road surface and contributes to sedimentation and the deposition of debris in waterways (FHWA 2002).

1.4.4 System Linkage and Roadway Operation

The current deficiencies described above deter motorists from using Bautista Canyon Road as a link in the County of Riverside transportation system. Table 1.4-1 compares the existing travel times (as a relationship of distance and speed) between Hemet (Valle Vista) and Anza via Bautista Canyon Road and two alternate routes. As shown, Bautista Canyon Road has notably lower travel speeds. The lower speeds caused by deficiencies in the roadway make either SH 74 or State Street/Sage Road a more efficient route of travel between the Hemet/Valle Vista area and Anza (Figures 1.3-1 and 1.3-2).

Table 1.4-1
Travel Distance and Time from Downtown Hemet to Anza Community Center

Route	Distance (km/mi)	Average Speed (kph/mph)	Travel Time
SH 74 to SH 371 (not via Bautista Canyon Road)	58.9 (36.6)	53.4 (33.2)	47 minutes
SH 74/State Street/Sage Road/ SH 79/SH 371	65.3 (40.6)	54.1 (33.6)	56 minutes
SH 74/Bautista Canyon Road/ SH 371	43.5 (27.0)	31.7 (19.7)*	49 minutes

Source: County of Riverside, Department of Transportation

km – Kilometer
km/h – kilometers per hour
mi – mile
mph – miles per hour
SH – State Highway
*Assumes 10-miles per hour on 13.2 km (8.2 mi) dirt segment

Table 1.4-2 shows the existing average daily traffic (ADT) volumes, projected ADT on Bautista Canyon Road for opening year (i.e., 2006) and design year (i.e., 2025), as well as projected 2025 ADT if the project is not built. If the project is constructed, a portion of the traffic volumes would be diversions from SH 371/SH 74; however, total volumes on Bautista Canyon Road are projected to increase in response to population growth in Riverside County. This is described in more detail in Sections 3.2 and 3.3 of this document.

Table 1.4-2
Traffic Volume Projections

Segment	Existing ADT	No Build 2025 ADT	Opening Year ADT*	Build 2025 ADT	Mountain Arterial % Capacity* (Existing ADT)
East of Fairview Avenue (north)	346	779	600	1,790	3.5%
Bautista Conservation Camp (central)	138	311	400	1,320	1.4%
South of Tripp Flats Road (south)	61	137	300	1,150	0.6%

UCI, 2002
* - Based on minimum of 10,000 daily trips

Table 1.4-2 also shows the percentage of capacity for existing operating conditions based on the minimum number of daily trips for mountain arterials (10,000). This data is provided to illustrate that the roadway fails to function in the system because of existing roadway deficiencies. In order to complete a regional transportation/circulation link as defined in the REMAP and RTIP, the roadway would have to be improved to current design standards. This is based on the need to safely accommodate the existing and projected increase in traffic volumes on Bautista Canyon Road and provide a more efficient route for motorists traveling between Valle Vista and Anza.

1.4.5 Maintenance

Riverside County maintenance crews currently grade Bautista Canyon Road three times each year. Vehicle use quickly degrades the unpaved segment. The degradation is exacerbated during and after storm events when vehicles travel on the wet road surface. In addition to maintaining the roadway surface, County personnel regularly cut channels to drain surface water and clear sediments deposited by storm runoff.

Traffic volumes are expected to increase with regional growth. If the project is not implemented, increased use of the roadway would more rapidly degrade the surface, thus, requiring more frequent maintenance and increase overall costs. Reconstruction to current design standards would reduce or eliminate much of the ongoing maintenance requirements.

1.4.6 SBNF Access for Emergency/Fire Response and Administration

Bautista Canyon Road provides access to over 40,000 acres of national forest, state, Indian Reservation, and private lands. It provides access to the southern portion of the Ramona Indian Reservation and is the primary route of vehicular access to this portion of the SBNF for administrative patrols and emergency response. SBNF staff access the forest for a variety of purposes including law enforcement, fire patrols, wildlife and habitat management; to access other roads, and to monitor recreational users. Bautista Canyon Road also serves as a potential escape route for Anza residents in case of wildfire.

The SBNF performs weekly law enforcement patrols, which involve monitoring the canyon for signs of illegal dumping, enforcing use of Adventure Pass permits, and generally overseeing recreational and other activities occurring within the canyon. SBNF indicates that prior to paving the northern segment of Bautista Canyon Road, there was significant off road vehicle use in the canyon, as well as illegal dumping of trash and abandoned vehicles. Since the northern portion of the roadway was paved, off road vehicle travel and illegal dumping along that road segment has been minimal. There is currently significant illegal dumping along the unpaved section of Bautista Canyon Road and the SBNF believes implementation of the proposed project would result in a similar reduction in off road vehicle use and illegal dumping. Vehicle wear and tear caused by the existing road surface has been cited by SBNF as a deterrent to performing more routine patrols in Bautista Canyon. In addition to law enforcement and emergency response, Bautista Canyon Road is used to access the canyon by SBNF staff to perform biological surveys required to manage listed species of plants and animals; maintain recreational trails, and perform routine fire patrols.

The California Department of Fish & Game also patrols the canyon during hunting season primarily to monitor hunters for compliance with license requirements. Proposed improvements would also allow for increased law enforcement patrols by USDAFS Law Enforcement Officers, USDAFS Fire Prevention Technicians, and Riverside County Sheriff Department officers. In the event of fire or other emergency, the SBNF has one fire engine co-located in Anza with the California Department of Forestry (CDF). This engine and other emergency response units access the canyon via Bautista Canyon Road. CDF fire fighters located at the Conservation Camp also use Bautista Canyon Road to access the canyon for fire response. Implementation of the proposed project would improve the response times for initial attack on wildfires occurring within the canyon. The greatest benefit would be associated with paving the road surface; however, alignment changes would also contribute to more rapid emergency response. Improvements to Bautista Canyon Road would reduce the response time for emergency calls within the canyon for Valle Vista Fire Station from the north and Anza Fire Station from the south.

1.4.7 Safety

A review of collision history for the existing unpaved segment of Bautista Canyon Road (from just south of the Conservation Camp to the paved portion of Bautista Canyon Road in Anza) shows that there were a total of 19 reported accidents in the ten-year period from 1 November 1994, to 31 October 2003. Of the 19 accidents, 2 involved fatalities, 6 involved injuries, and 11 resulted in only property damage. Of the 19 collisions, 8 collisions (42 percent) involved fatalities or injuries. Based on the length of the unimproved segment, and an average daily traffic (ADT) volume of 61 vehicles (UCI 2002), the collision rate is 10.4 accidents per million vehicle miles (MVM). The collision data are summarized in Table 1.4-3.

For comparison purposes, a 1987 study by the FHWA, which evaluated data from seven states, found that the average total accident rate (accidents per MVM) was 2.9 for rural two-lane highways with an ADT of less than 400, and 2.3 for an ADT greater than 1000 but less than 2000 (FHWA 1987).

Table 1.4-3
Collisions on Bautista Canyon Road †

Study Period*	Length (miles)	No. of Collisions				Traffic Volumes** (vehicles/day)	Collision Rate*** (acc/mvm)
		Fatal	Injury	PDO	Total		
10 years	8.2	2	6	11	19	61	10.4

÷ The unpaved segment from approximately south of the Conservation Camp to a point just north of the paved portion of Bautista Road in Anza.

* Study Period: Nov. 1, 1994 to Oct. 31, 2003 (10 years)

** Baseline traffic volume per Table 3.3-1 of DEIS.

*** Collision Rate =

$$\frac{\text{Number of collisions} \times 10^6}{\underset{\text{(veh/day)}}{\text{ADT}} \times \underset{\text{(days)}}{\text{Period of time in which collisions occurred}} \times \underset{\text{(miles)}}{\text{Length of road segment}}} = \text{acc/mvm}$$

The Zegeer crash prediction model (FHWA 1987) for 2-lane highway was used to predict the crash rate for Bautista Canyon Road in the design year (2025). A crash rate of 4.6 per MVM was computed for the existing conditions using this model. Comparing the computed rate with the actual crash rate of 10.4 indicates that the existing conditions are worse than the modeled conditions. The discrepancy between the model and existing conditions is most likely due to the widely varying conditions of the existing roadway (widths, sight distances, speeds, etc.) that cannot be replicated in the model but that will be addressed with the proposed design. Based on the Zegeer model, if Bautista Canyon Road was not improved, the crash rate in the year 2025 [based on an ADT of 138 (UCI 2002)] would be 4.5 per MVM.

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2.0 ALTERNATIVES

2.1 Overview

The purpose of this section is to present a reasonable range of alternatives developed to meet the purpose of and need for the project. The alternatives description is intended to provide decision makers and the public a clear basis for choice among the alternatives. This EIS/EIR considers three build alternatives, identified as Alternatives A, B, and C, and a No Action alternative (Alternative D). Also provided is a discussion of those alternatives eliminated from detailed study. Chapter 3 provides a detailed comparative analysis of the impacts and appropriate mitigation measures, where required, for each alternative considered.

Bautista Canyon Road north of the project limits, from Valle Vista to the Conservation Camp, consists of a 2 lane, winding, paved road through rolling terrain. The road width typically ranges from 24 to 28 feet in width with the pavement condition being in fair to poor condition. The design speed of most of the roadway is in the range of 25 to 35 mph but contains multiple curves that do not meet the requirements for those design speeds. There is one vented low water crossing of Bautista Creek.

Bautista Canyon Road south of the project limits, from the southern project limit to route 371 in Anza, consists of a 2 lane paved road through flat terrain. This roadway has only one horizontal curve, consisting of a ninety degree turn with a radius lower than the AASHTO criteria for a 15 mph curve. The road width typically ranges from 22 to 26 feet in width with the pavement condition being in fair to poor condition. There are multiple residential driveways along this section of roadway.

The proposed Alternative A, B, and C alignments vary depending upon the proposed design speed and alignment variations developed to avoid or minimize impacts to environmental resources. The three build alternatives were selected for further analysis because they best balance competing concerns by meeting the project objectives while minimizing environmental impacts. Alternative D is included in this document to comply with NEPA (§ 1502.14[d]) and CEQA Guidelines (§ 15126.6[e]), which require the evaluation of impacts associated with a no action alternative. The purpose of the no action alternative is to provide decision makers a benchmark to compare the magnitude of environmental effects associated with implementation of the proposed action alternatives.

2.2 Alternatives Considered in Detail

The alternatives were developed to satisfy the purpose of and need for the project and meet the following objectives:

- Improve safety
- Provide a continuous paved surface
- Widen the roadway to provide functionally adequate travel way and shoulders

- Realign the roadway to remove sharp turns and abrupt vertical curves in order to improve sight distance.
- Reduce travel time between SH 74 and SH 371
- Provide superelevation and provide a more uniform travel speed
- Realign and raise the roadway grade along Bautista Creek to move it out of the 100-year floodplain
- Replace deteriorating and/or insufficient drainage culverts
- Add additional drainage culverts at existing low water crossings
- Provide a parking area for the Alessandro Trailhead
- Provide a parking area and interpretive site in Bautista Canyon
- Improve access efficiency for all users
- Reduce travel time between SH 74 and SH 371
- Reduce maintenance costs and needs
- Reduce fugitive dust emissions
- Add a bridge crossing over Bautista Creek, and
- Improve emergency vehicle access to Bautista Canyon.

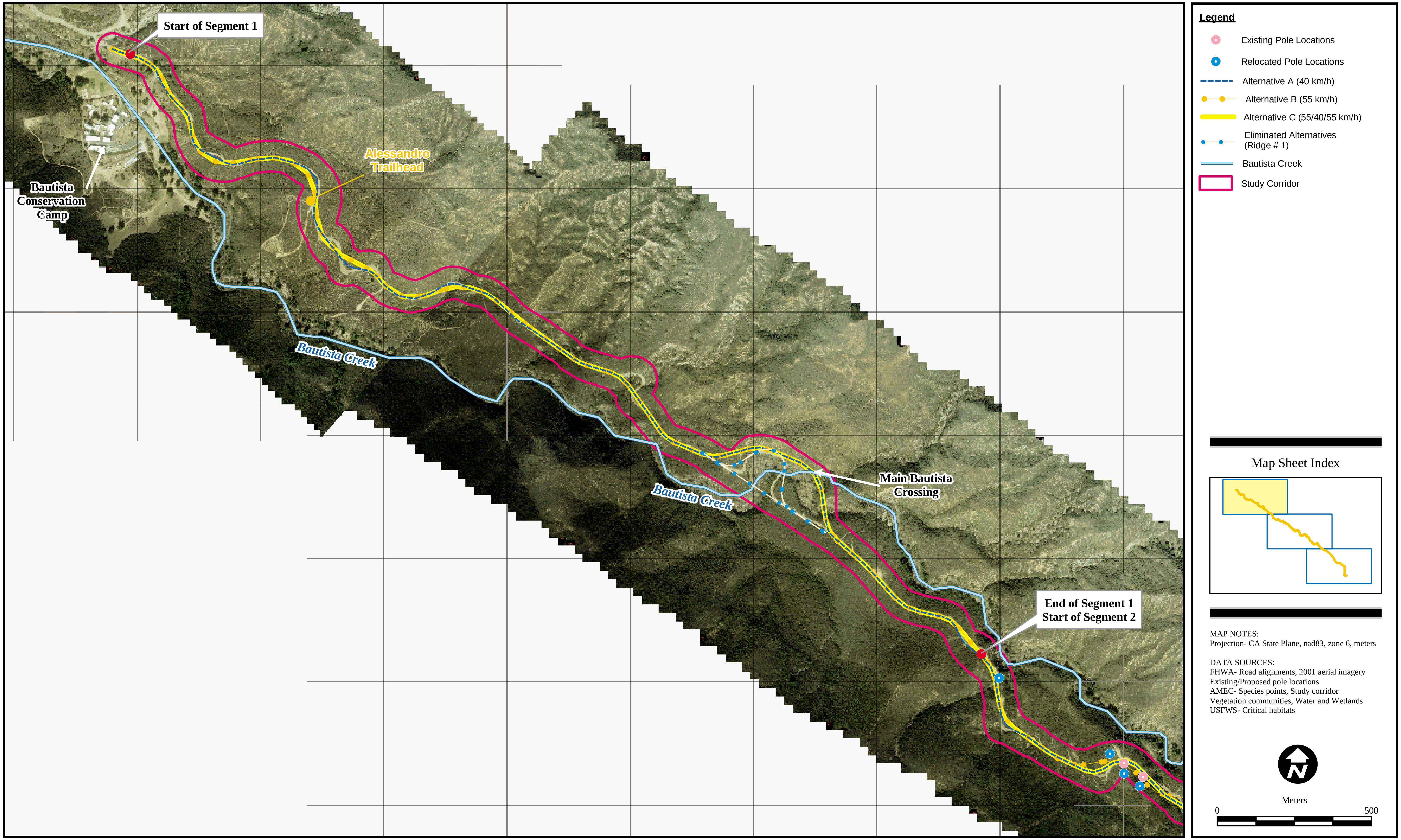
As noted, the project study area is comprised of the unpaved segment of Bautista Canyon Road. The study area ranges in elevation from 823 to 1,219 meters (m) (2,700 to 4,000 feet [ft]). The length of the project [approximately 13.2 km (8.2 mi)] is broken up into three segments based on the existing terrain. Segment 1 [5.0 km (3.1 mi)] consists of rolling terrain. Segment 2 [5.3 km (3.3 mi)] consists of mountainous terrain, while Segment 3 [2.9 km (1.8 mi)] consists of flat terrain. The project segments are shown in Figures 2.2-1 through 2.2-3 and are described as follows:

- **Segment 1 (rolling):** The northernmost 5.0 km (3.1 mi) section of the route traverses gently rolling top-of-ridge or hillside terrain. This segment also crosses several drainages, including Bautista Creek.

- **Segment 2 (mountainous):** The central segment extends from the end of Segment 1 approximately 5.3 km (3.3 mi) to approximately 1,000 m (3,300 ft) south of the Tripp Flats Road intersection. This segment traverses fairly difficult, predominantly side-hill terrain and crosses several drainages, including Bautista and Cottonwood Creeks.

- **Segment 3 (gentle):** The southernmost 2.9 km (1.8 mi) section traverses gentle side-hill or alluvial fan terrain and crosses Bautista Creek about 250 m (825 ft) north of Howard Road.

As discussed, Alternatives A, B and C have varying alignments based on proposed design speeds. Alternative C has been designated as the preferred alternative. Under alternative C, the design speed varies depending on topography. These design considerations are intended



Project Alternatives

FIGURE
2.2-1

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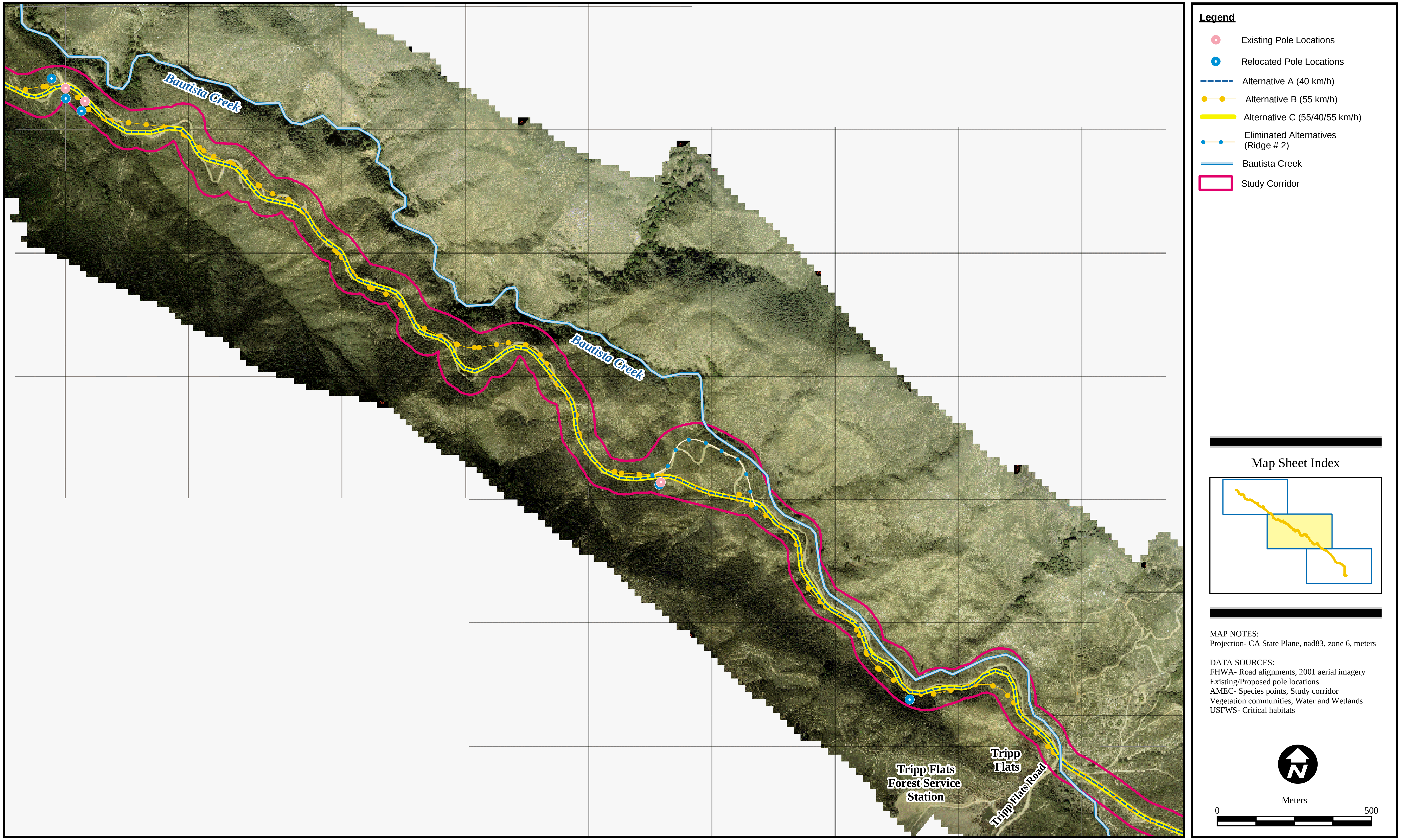

MAP NOTES:
Projection- CA State Plane, nad83, zone 6, meters

DATA SOURCES:
FHWA- Road alignments, 2001 aerial imagery
Existing/Proposed pole locations
AMEC- Species points, Study corridor
Vegetation communities, Water and Wetlands
USFWS- Critical habitats

Project Alternatives (Continued)

FIGURE
2.2-2

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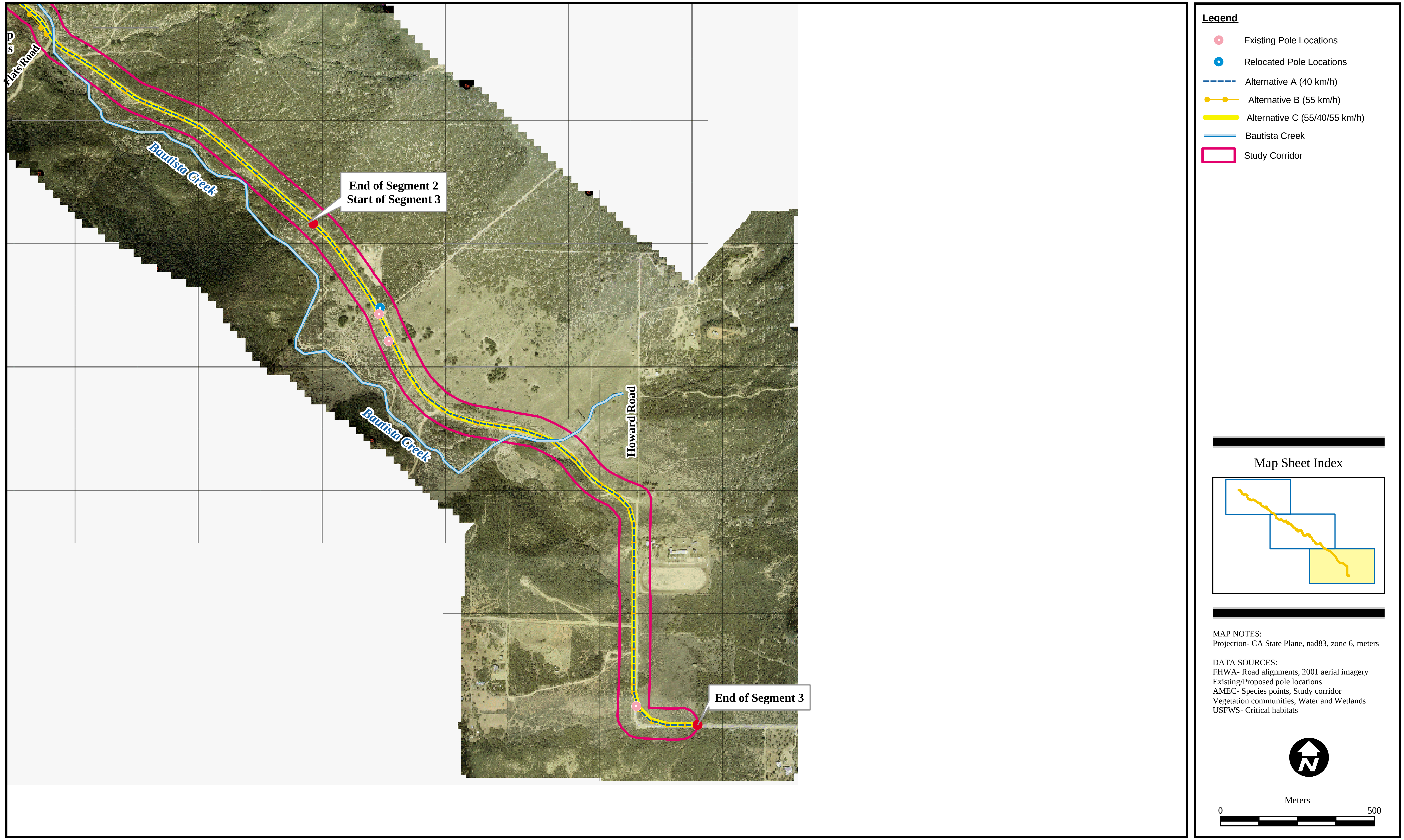

FIGURE
2.2-3

Project Alternatives (Continued)

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to maximize the functionality of the proposed roadway while minimizing adverse environmental effects.

2.2.1 Design Criteria Common to All Build Alternatives

2.2.1.1 Design Standards

Design criteria used for the build alternatives were developed using AASHTO, CFLHD, USDAFS, County of Riverside, and Caltrans standards. FHWA has approved and adopted AASHTO and state (Caltrans) standards for public lands highways such as Bautista Canyon Road. FHWA can approve lesser standards for specific projects when appropriate. CFLHD has developed guidelines for consideration in environmentally sensitive locations where adherence to the approved standards would create unacceptable environmental impacts and approval of a less restrictive standard can be justified as an exception. Table 2.2-1 summarizes the design standards established for this project. A design exception will be needed for standards used that do not meet the AASHTO criteria. In most cases, these standards still meet County of Riverside and/or CFLHD criteria. Design standards are described as follows. Standards requiring design exceptions are noted.

Table 2.2-1
Design Standards

Standard	AASHTO	CFLHD	Caltrans	Standard Used
Design Vehicle	N/A	N/A	N/A	Single Unit Truck
Design Speed	Rolling – 60 km/h minimum; Mountainous – 50 km/h minimum	N/A	60-80 km/h	40 km/h 55 km/h
		Cross Section		
Travel Lane Width	40 km/h – 3 m minimum; 60 km/h – 3.3 m minimum	3.3 m minimum	3.6 m minimum	3.3 m
Shoulder Width	1.5 m minimum	40 km/h – 0.3 m minimum; 60 km/h – 0.6 m minimum	0.6 m minimum	0.6 m
Offset to Guardrail	50 km/h – 1.1 m 60 km/h – 1.4 m	40 km/h – 0.9 m 60 km/h – 1.2 m	1.2 m	1.2 m
Roadway Cross Slope	2% minimum	1.5 % to 2%	2%	2%
Maximum Fill Slope Ratio	N/A	N/A	N/A	1(V):1.5(H) maximum; 1(V):2(H) desirable
Maximum Cut Slope Ratio	N/A	N/A	N/A	2(V):1(H) maximum (rock); 1(V):2(H) desirable
Foreslope Width **(225 mm Depth Pav't)**	N/A	40 km/h 0.9 m 60 km/h 1.125 m	N/A	1.2 m

Standard	AASHTO	CFLHD	Caltrans	Standard Used
		Horizontal		
Minimum Radius	40 km/h – 55 m 55 km/h – 110 m	N/A	40 km/h – 70 m 60 km/h – 150 m	40 km/h – 55 m 55 km/h – 125 m
Maximum Superelevation	12%	8%	12%	6%
		Vertical		
Maximum Grade	40 km/h – 10%/11% (Rolling/Mountainous); 55 km/h – 8%/10%	N/A	Rolling – 5% Mountainous – 7%	11%
Stopping Sight Distance (Grades < 3%)	40 km/h – 50 m 60 km/h – 85 m	40 km/h – 44.4 m 60 km/h – 84.6 m	40 km/h – 50 m 60 km/h – 85 m	40 km/h – 50 m 55 km/h – 75 m

The standards used for this project were selected based upon the following factors:

Design Vehicle – As noted in Table 2.2-1, a single unit (SU) (two axle) truck design vehicle was selected. Based on traffic counts taken in April 2002, only 0.6% of traffic volumes north of the Conservation Camp were double unit (semi) trucks (i.e., wheel base greater than 50 ft). These trucks were assumed to access the Conservation Camp and then return to the north, as no double unit trucks were recorded south of Tripp Flats Road. Selection of the SU design vehicle is intended to minimize environmental impacts. Relative to a double unit truck, the curve radii needed to accommodate a SU design vehicle are smaller; thus, less environmental disturbance would be necessary to meet the project's purpose and need. It is anticipated that a very low volume of vehicles larger than an SU vehicle would use this route. Vehicles larger than the SU may slightly encroach upon the opposite lane or off-track on the inside of tight curves. The County proposes to restrict larger vehicles on this road using signage at both logical termini and at appropriate locations along the route.

Design Speed – A minimum design speed of 50 km/h (30 mph) in the mountainous sections (segment 2) and 60 km/h (37 mph) in the rolling sections (Segments 1 and 3) is recommended by AASHTO. Based on projected roadway use and environmental considerations, the SEE Team agreed that this roadway would be designed using 40 to 55 km/h (25 to 35 mph). A design exception would be required.

Travel Lane Width – A travel lane width of 3.3 m (11 ft), as recommended by AASHTO and CFLHD, would be used for this project.

Shoulders and Roadside Treatments – A shoulder width of 0.6 m (2 ft) would be used for this project. In areas that require a guardrail, this width would be increased to 1.2 m (4 ft) to account for the AASHTO recommended shy distance. AASHTO recommends a 1.5 m (5 ft) shoulder width, but, due to an increase in environmental impact and FHWA's experience with rural two-lane highways in this type of setting, it was determined that a design exception would be applicable. Because the travel lane width, which is most influential when considering safety, was not reduced below the recommended criteria, the effect on safety associated with reducing the shoulder width was acceptable in comparison to the degree of environmental impact avoided. Paved ditches will be constructed on grades steeper than 4% to reduce soil erosion.

Maximum Fill Slope Ratio – A maximum fill slope ratio of 1 vertical (V):2 horizontal (H) would be used in most locations. This is the maximum slope that would allow revegetation. A fill slope ratio of 1(V):1.5(H) could be revegetated using erosion control measures and a more complicated, time-consuming, and expensive revegetation process. This slope ratio would only be used in areas where the reduction in impacts would justify the increased effort and cost to revegetate the slope. For this project, 1(V):1.5(H) slopes would be used in areas with long fill slopes that have approximately the same or flatter slopes than the existing ground, and where increasing the slope to 1(V):1.5(H) would significantly reduce the area of disturbance.

Due to the existing and projected roadway characteristics, such as low traffic volumes [e.g., 361 ADT existing; 1,790 ADT projected for design year (2025)], low speeds [project design speed of 40 to 55 km/h (25 to 35 mph)], mountainous terrain, and the desire to maintain a natural canyon setting, all of the roadside safety hazards related to fill slope stability would be evaluated on a case-by-case basis. In cooperation with the County of Riverside and the USFS, FHWA will develop project specific safety concern guidelines. In areas that appear to have a high potential of being a safety concern based on the guidelines, the following three options will be evaluated:

1. Remove or reduce the hazard so that it is no longer a safety concern (flatten slopes, remove obstacles, provide adequate clear zone).
2. Provide safety mitigation by installing guardrail.
3. Leave the hazard unshielded, but use signing or delineation.

Maximum Cut Slope Ratio – Based on the Interim Geotechnical Report (CA-FX-0224-03-01) (Volume II, Appendix J), various maximum cut slope ratios would need to be used depending on the soil characteristics. For areas with alluvial soil, a maximum slope of 1:1 can be used, although a 1(V):2(H) slope is preferred for revegetation purposes. In areas of rock, a maximum slope of 2(V):1(H) would be used.

Minimum Radius – The minimum horizontal radius used for this project would be 55 m (180 ft) for 40 km/h (25 mph) sections and 110 m (361 ft) for 55 km/h (35 mph) sections. This is based on AASHTO recommendations for a maximum superelevation of 6%.

Maximum Grade – The maximum grade used for this project would be 11%. The 11% grade would be limited to short segments to reduce the effect on travel speed and safety.

Stopping Sight Distance – The stopping sight distance used for vertical and horizontal curves and intersection designs would be 50 m (164 ft) and 75 m (246 ft) for 40 km/h (25 mph) and 55 km/h (35 mph), respectively. The stopping sight distance would be adjusted for grades over 3%.

2.2.1.2 Speed Limits on Bautista Canyon Road

Bautista Canyon Road currently does not have a posted speed limit. Where the design speed of the road is 25 mph (40 km/h), the County would install 25 mph (40 km/h) limit signs. On the proposed paved Bautista Canyon Road, the County would install 35 mph limit signs for both the northbound and southbound direction where the design speed of the road is 35 mph (55 km/h).

2.2.1.3 Center Line Striping

After the proposed paving is complete, double yellow centerline and white edge lines would be installed on Bautista Canyon Road starting from Fairview Avenue, including the newly paved portion, and ending at SH 371. The centerline line and edge lines would provide orderly flow of traffic from opposite directions, and better nighttime guidance for traffic.

2.2.1.4 Truck Prohibitions and Sign Placements

As noted, one purpose of the proposed action is to improve the safety of an existing unpaved County road. To maintain safety after project completion, through truck traffic of a certain weight would not be allowed on the newly paved segment. SU trucks would be the largest vehicles allowed on Bautista Canyon Road. The County intends to install signs at the beginning of the limits of the proposed project to prohibit commercial vehicles with a gross weight of 7 tons or more. Advance warning signs at strategic locations, including Fairview Avenue at Mayberry Avenue for southbound traffic, and Bautista Canyon Road north of SH 371 for northbound traffic, would also be installed.

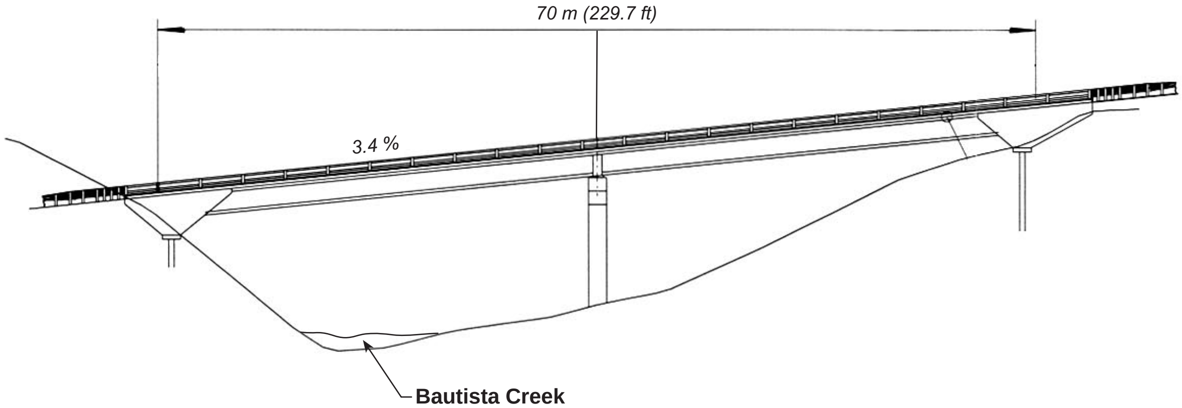
2.2.1.5 Drainage

The main Bautista Creek crossing is located approximately 3.0 km (1.9 mi) south of the northern terminus. Under the build alternatives, Bautista Canyon Road would cross the creek via a 70 m long and 9.9 m wide (229.7 ft by 32.7 ft), two-span bridge. The height of the bridge would be a minimum of 4.3 m (14 ft) above the creek bed. A typical bridge cross section is shown in Figure 2.2-4. The purpose of the bridge would be to provide adequate hydrologic clearance for the reconstructed road, reduce resource impacts resulting from fill placement, and accommodate wildlife passage. The bridge would be designed as an all-weather crossing capable of withstanding a 100-year flood event.

The project would also require the installation of culverts where the roadway crosses existing creeks or other natural drainages, and for storm drainage. To comply with SBNF design criteria, culverts would be designed to accommodate a 50-year flood event. The minimum culvert size is proposed to be 0.6 m (2 ft) in diameter. Four culverts have been identified that may be conducive to wildlife passage and would be designed for both hydraulic requirements and wildlife movement.

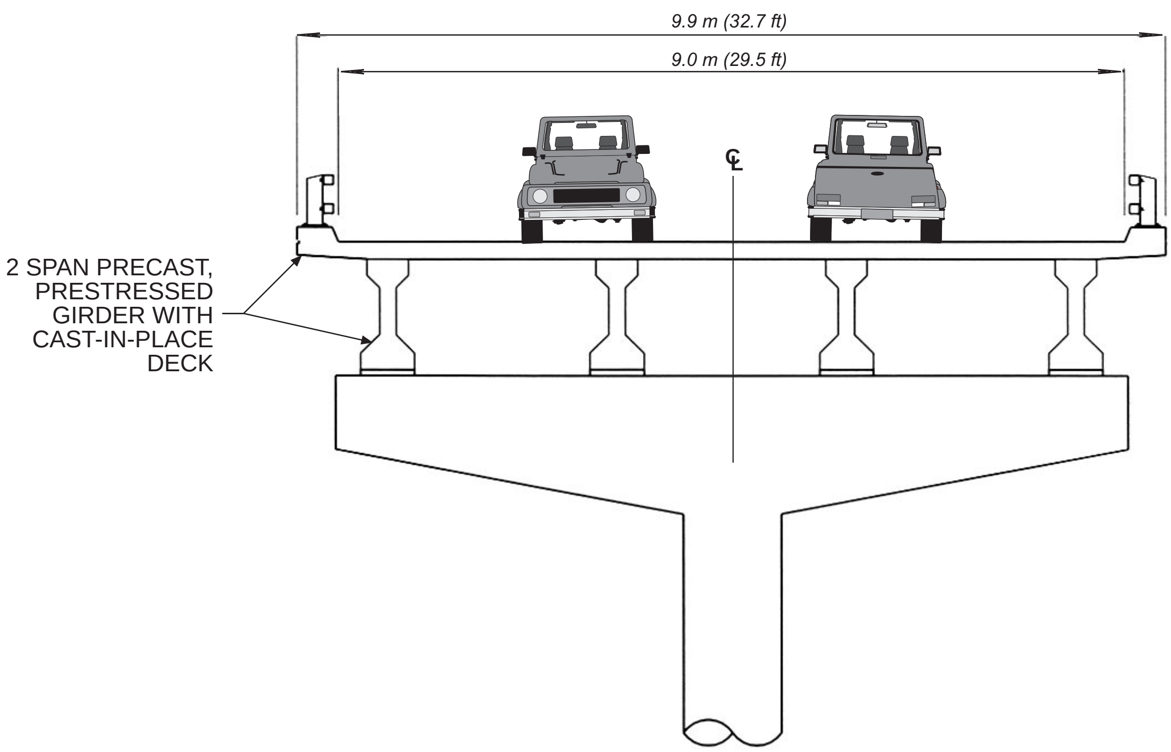
2.2.1.6 Bautista Canyon Overlook

A 0.1 ha (0.3 ac) interpretive overlook area is proposed on a point overlooking Bautista Canyon approximately 5.5 km (3.4 mi) south of the northern terminus. The conceptual design includes a pullout area with parking for five vehicles and a pathway to the overlook area. An interpretive display (see Figure 2.2-5) describing historical use of the canyon by Native Americans, and use of the canyon as a travel corridor for Juan Bautista de Anza would be provided at the overlook



PRELIMINARY
TYPICAL BRIDGE SECTION (SIDE VIEW)

ELEVATION



PRELIMINARY
TYPICAL BRIDGE SECTION

SOURCE: FHWA 2003

Bautista Canyon Typical Bridge Section

FIGURE

2.2-4

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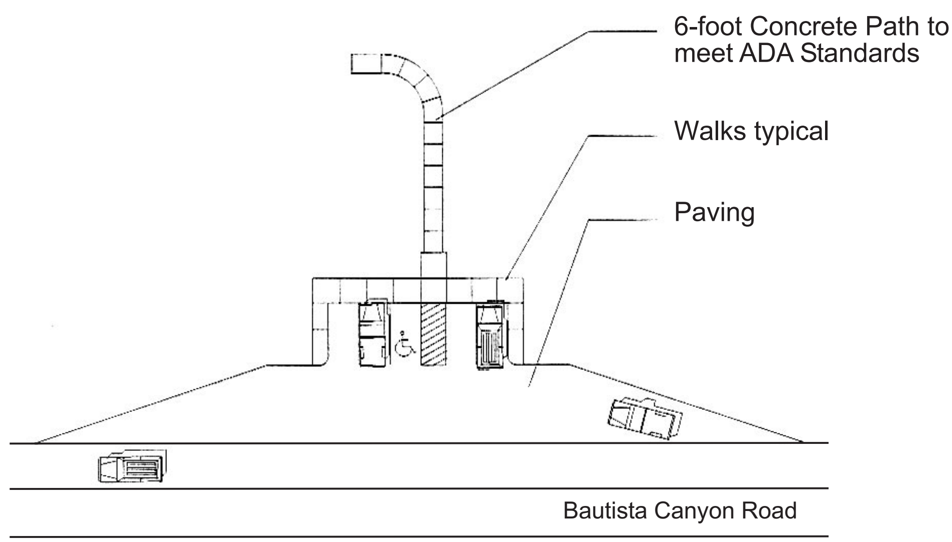
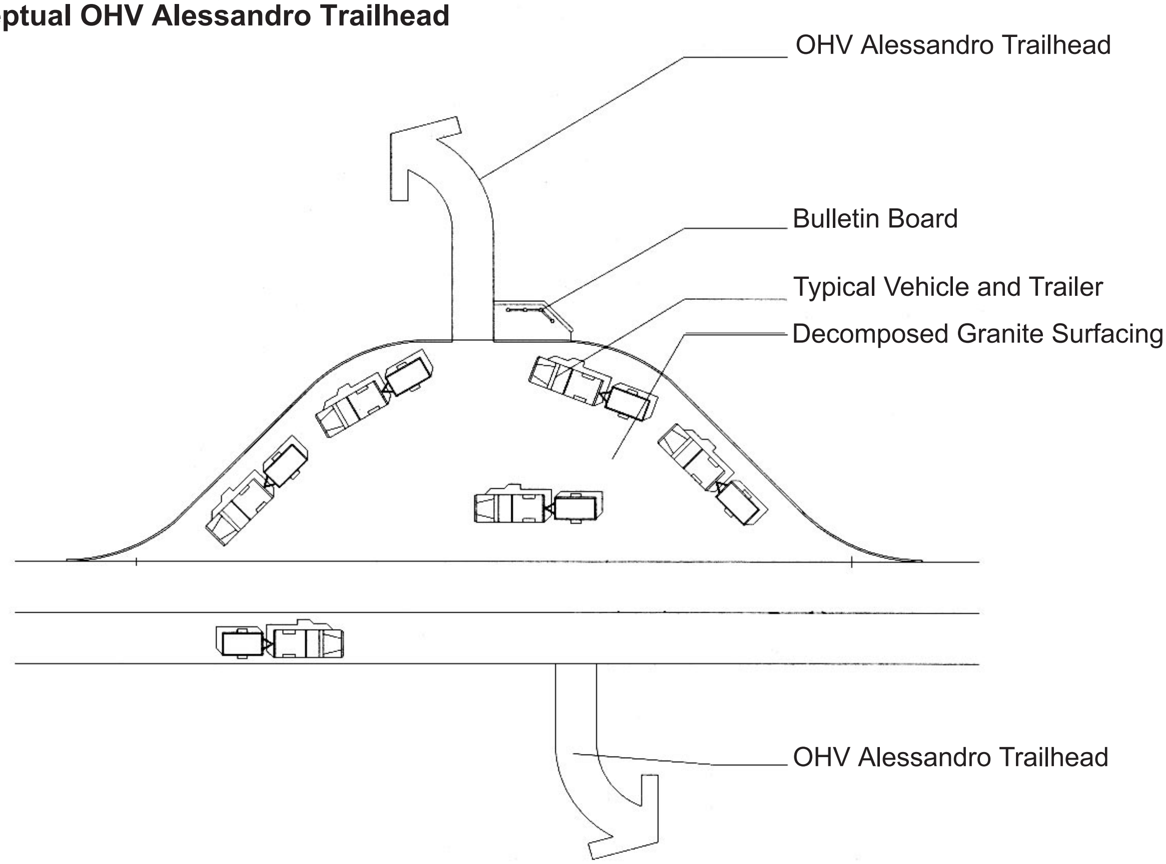
Conceptual Overlook



Conceptual OHV Alessandro Trailhead



Bautista Canyon - Conceptual Overlook and OHV Alessandro Trailhead Plans

FIGURE 2.2-5

GRAPHICS/Environmental/Bautista Canyon Road/Overlook_OHVa.FH8

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kiosk. The overlook area would be designed to meet Americans with Disabilities Act (ADA) standards.

2.2.1.7 Bautista Canyon Off-Highway Vehicle Alessandro Trailhead

A 0.1 ha (0.3 ac) trailhead pullout area is proposed for construction at the existing Alessandro Trail crossing located 0.7 km (0.4 mi) south of the northern terminus. The parking area is currently proposed to be surfaced with decomposed granite and sized to accommodate approximately five vehicles and trailers. A small informational bulletin board is also proposed. The Alessandro Trail is an OHV trail that links to other OHV trails in the SBNF (see Figure 2.2-5).

2.2.1.8 Abandoned Roadway Restoration

All abandoned sections of dirt roadway will be restored to produce natural topography and revegetated according to an approved Landscape and Revegetation Plan (see Section 3.6.5, and conceptual plan in Volume II, Appendix F).

2.2.2 Alternatives

2.2.2.1 Alternative A – 40 km/h (25 mph) Design Speed

Typical Section

The roadway would be paved for two lanes of traffic, one lane in each direction, with a pavement width of 7.8 m (26 ft) (see Figure 2.2-6). Each lane would be 3.3 m (11 ft) in width with a 0.6 m (2 ft) wide shoulder. The total length of this alternative is approximately 12.3 km (7.6 mi) (see Figures 2.2-1 through 2.2-3). The preliminary construction cost estimate for Alternative A is approximately $11.5 million.

Design Speed

The proposed design speed for Alternative A is 40 km/h (25 mph). Alternative A provides a 40 km/h alignment throughout the rolling to mountainous Segments 1 and 2, while matching the 55 km/h (35 mph) in the flatter Segment 3 due to the straight alignment of the existing roadway.

Excavation Estimates

Alternative A would require approximately 225,000 cubic meters (m^3) (294,300 cubic yards [yd^3]) of excavation and would result in 16.1 ha (39.8 ac) of new disturbance (see Table 2.2-2). The area of disturbance was calculated based on a right-of-way width of 12 m (40 ft) with additional area added to incorporate cut/fill slopes. Alternative A would result in cut and fill slopes up to 25 m (80 ft) in height.

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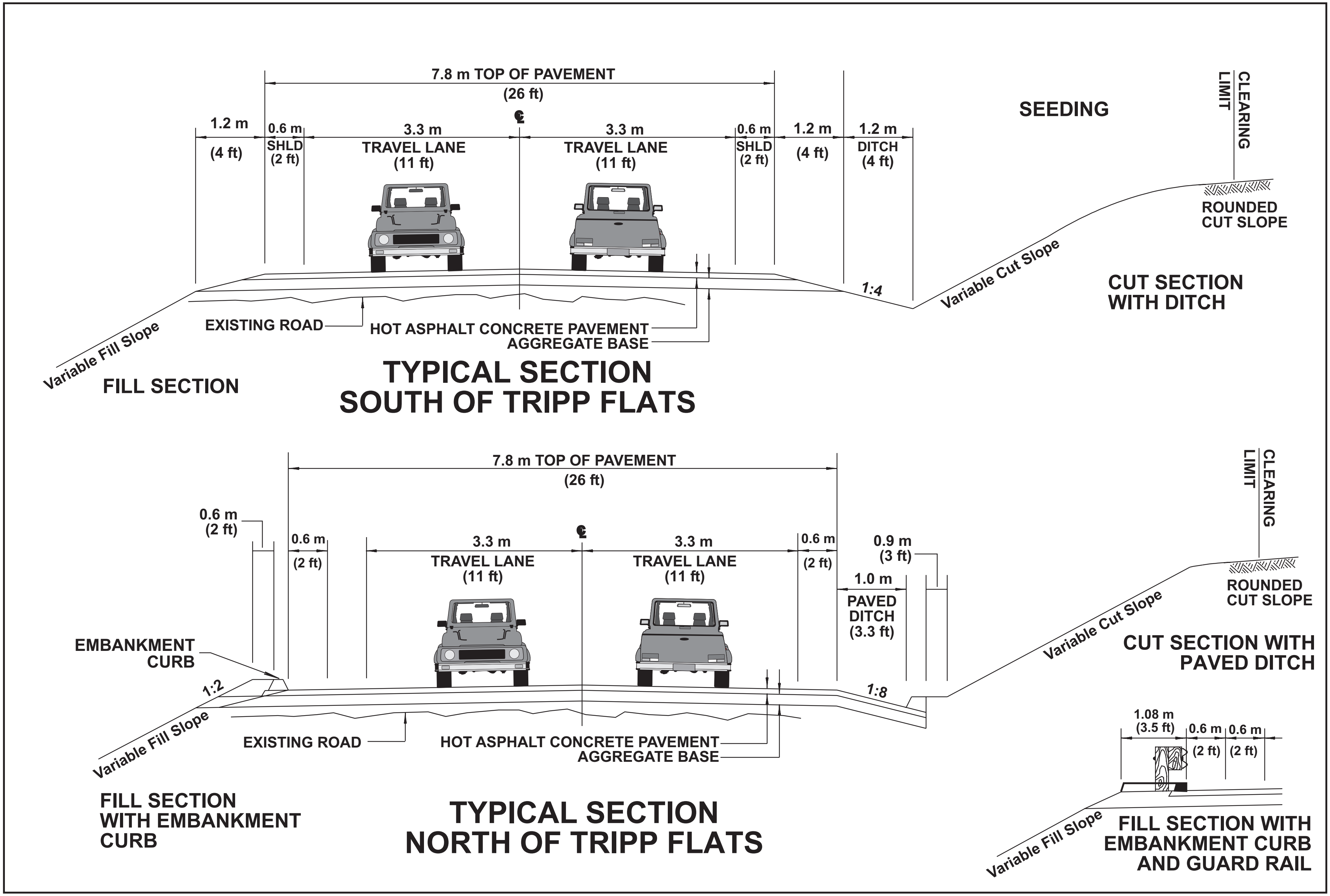

FIGURE 2.2-6

Typical Roadway Cross Sections

GRAPHIX/Environmental/Bautista Canyon Road/TypRoadway_A.FH8

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Table 2.2-2
Summary of Principal Characteristics of Alternatives

Alternative	Length (kilometers /miles)	Disturbance within Existing Roadway (hectares/acres)	Total Area of New Disturbance* (hectares/acres)	Pavement Width (meters/feet)	Estimated Earthwork Required (cubic meters/ cubic yards)	Estimated Cost
A – 40 km/h (25 mph)	12.3 km (7.6 mi)	6.6 ha (16.3 ac)	16.1 ha (39.8 ac)	7.8 m (26 ft)	225,000 m^3 294,300 yd^3	$11.5 million
B – 55 km/h (35 mph)	12.1 km (7.5 mi)	5.5 ha (13.6 ac)	17.9 ha (44.2 ac)	7.8 m (26 ft)	303,000 m^3 396,300 yd^3	$13.3 million
C – 55/40/55 km/h (35/25/35 mph)	12.3 km (7.6 mi)	6.2 ha (15.3 ac)	16.6 ha (41.0 ac)	7.8 m (26 ft)	235,000 m^3 307,400 yd^3	$11.7 million
D – No Action	13.2 km (8.2 mi)	N/A	N/A	4.8 - 6.1 m (16 - 20 ft)	N/A	Continued maintenance costs

*Total area of disturbance was derived by subtracting the existing roadway area from the total proposed alternative grading area. The existing unpaved roadway segments not paved as part of project implementation would be revegetated.

ac – acres
ha – hectares
yd^3 – cubic yards
m^3 – cubic meters
ft – feet
m – meters
km/h – kilometers per hour
mph – miles per hour

2.2.2.2 Alternative B - 55 km/h (35 mph) Design Speed

Typical Section

The roadway would be paved for two lanes of traffic, one lane in each direction, with a pavement width of 7.8 m (26 ft) (see Figure 2.2-6). Each lane would be 3.3 m (11 ft) in width with a 0.6 m (2 ft) wide shoulder. The total length of this alternative is approximately 12.1 km (7.5 mi) (see Figures 2.2-1 through 2.2-3). The preliminary cost estimate to construct Alternative B is approximately $13.3 million.

Design Speed

The design speed proposed for Alternative B is 55 km/h (35 mph) throughout the project (see Figures 2.2-1 through 2.2-3).

Excavation Estimates

Alternative B would require approximately 303,000 m^3 (396,300 yd^3) of excavation and would result in 17.9 ha (44.2 ac) of new disturbance (see Table 2.2-2). Alternative B would result in cut and fill slopes of up to 25 m (80 ft) in height.

2.2.2.3 Alternative C – Combination 55/40/55 km/h (35/25/35 mph) Design Speed

Typical Section

The roadway would be paved for two lanes of traffic, one lane in each direction, with a pavement width of 7.8 m (26 ft) (see Figure 2.2-6). Each lane would be 3.3 m (11 ft) in width with a 0.6 m (2 ft) wide shoulder. The total length of this alternative is approximately 12.3 km (7.6 mi). The preliminary cost estimate to construct Alternative C is approximately $11.7 million.

Design Speed

Under Alternative C, the affected portion of Bautista Canyon Road was divided into three segments based on terrain. Design speeds were incorporated accordingly to maximize travel efficiency while minimizing resource disturbance. Alternative C would incorporate a 55 km/h (35 mph) design speed in Segments 1 and 3 where the terrain is flatter and 40 km/h (25 mph) along Segment 2 where the terrain is mountainous.

Excavation Estimates

Implementation of Alternative C would require approximately 235,000 m^3 (307,400 yd^3) of excavation and would result in 16.6 ha (41.0 ac) of new disturbance (see Table 2.2-2). Alternative C would result in cut and fill slopes up to 25 m (80 ft) in height.

2.2.2.4 Alternative D (No Action)

The No Action (No Project) alternative is characterized as a "no-build" alternative. Under this alternative, no road improvements are proposed and Bautista Canyon Road would not be paved or realigned. The existing road and traffic conditions along Bautista Canyon Road are expected to worsen as traffic volumes increase. Current roadway maintenance would continue and adequate maintenance would become increasingly more expensive as the deficient aspects of the road remain unrepaired. Funding designated for the proposed action would be used on another Forest Highway project.

2.3 Alternatives Considered but Eliminated from Detailed Consideration

This section presents alternatives eliminated from detailed consideration. The alternatives discussed below were evaluated and found inadequate in terms of engineering design, traffic safety, or would result in unacceptable environmental impacts. Based on these findings, the alternatives were eliminated from further review.

2.3.1 Proposed Variations to Build Alternatives

Alternatives A, B, and C have undergone a review process to examine potential effects to biological, cultural, and other resources. Where practicable, these alternatives were revised to reflect more environmentally sensitive alignment variations within each alternative.

Ridge #1 Alignments: The existing roadway through this area descends into the drainage for Bautista Creek and crosses the creek with a low water crossing (see Figure 2.2-1). The existing alignment contains multiple sharp horizontal curves that could not accommodate the proposed design speeds.

Originally, there were two alignment alternatives at the Bautista Creek crossing (Ridge #1) in addition to the proposed alignment. One was a straight crossing that cut off the existing horseshoe alignment. This alignment bridged the creek drainage by continuing southeast where the existing road turns sharply to the north (the beginning of the “horseshoe”) and then reconnected at the eastern end of the “horseshoe.” In an effort to avoid impacts to wetlands, a second alignment (the “no bridge” alignment) was identified, which closely followed the existing alignment based on a 40 km/h (25 mph) design speed. The “no bridge” alignment shifted to the north, roughly following the existing alignment, and crossed Bautista Creek close to the existing crossing. The use of a culvert instead of a bridge was considered for this alignment due to the low profile. Preliminary review of these alignments indicated that each would result in unacceptable negative impacts to environmental resources. As a result, the proposed alignment was identified for this location and these early Ridge #1 alignments were eliminated from further review.

Ridge #2 Alignment: Ridge #2 is the location of another existing “horseshoe” curve that needs to be realigned to accommodate the 40 km/h (25 mph) design speed (see Figure 2.2-2). The original design followed the existing roadway alignment on the north side of the hill along Bautista Creek (the top of the “horseshoe”). This alignment impacted wetlands and had a negative impact on wildlife. To reduce these impacts, the proposed alignment at Ridge #2 was shifted to the south of the hill along a natural drainage channel grade, eliminating the impacts to the wetlands and other environmental resources. Consequently, the earlier Ridge #2 alignment was eliminated from analysis in the EIS/EIR.

2.3.2 Pave Existing Bautista Canyon Road

Paving the existing road alignment was considered but eliminated because it would not meet the project's objectives to improve safety and emergency access. The existing roadway was not engineered to current standards and is too narrow in several locations for vehicles to pass safely. Furthermore, basic roadway geometry is poor, with numerous sharp horizontal and vertical curves that limit sight distance. Additionally, roadway drainage is poor and road washouts and rockfalls caused by storm water runoff and seasonal flooding at the low-water crossings of Bautista Creek and other drainages would prevent use of the road during storm events. Paving the existing route would not be an appropriate use of federal funds because suitable design standards would not be achieved and it would not accomplish the purpose of or satisfy the need for the proposed project.

2.3.3 Reconstruct and No Pave

Implementation of this alternative would involve reconstructing the roadway to one of the build alternative standards; however, the surface would not be paved. This alternative was eliminated because it would result in equal direct environmental effects as the build alternatives and greater indirect effects resulting from the unpaved surface. This alternative would not adequately address maintenance needs because the unpaved surface would continue to require regular maintenance to maintain a safe, smooth driving surface. Thus, implementation of this alternative would not accomplish the purpose of or satisfy the need for the project.

2.3.4 New Route Using Existing Streets

A new route using roads such as SH 371 to SH 74 to the east or SH 371 to Wilson Valley Road/Sage Road/State Street to the west was considered. The existing traffic levels on Bautista Canyon Road are very low. At the Bautista Conservation Camp the traffic volume is only 88 vehicles per day on a Saturday, while at north end of the project east of Fairview Avenue the volume is 134 on the same day. This indicates that the through traffic volume is very low. Because taking the alternate route (using State Highways 74/371) is already faster than the existing road, and the very low volume of traffic of Bautista Canyon Road, it is reasonable to assume that all or virtually all of the traffic on Bautista Canyon Road is there for recreation or sightseeing rather than through traffic. Therefore, it is unlikely that implementing the New Route Using Existing Streets Alternative would take any traffic off Bautista Canyon Road. This alternative was eliminated from further consideration because it would not improve access to the SBNF or provide a more efficient link between Valle Vista and Anza.

2.3.5 New Route Through Bautista Canyon

A completely new alignment through Bautista Canyon was considered. This alternative was eliminated because construction of a new road would have greater environmental effects than those projected for reconstruction of the existing Bautista Canyon Road. Additionally, the SBNF opposed implementation of this alternative. Table 2.2-2 shows the amount of existing roadway that is being utilized and the total amount of new disturbance from each of the build alternatives. A new route through Bautista Canyon would result in a significant increase in new disturbance over the build alternatives considered in this EIS/EIR, amplifying the potential for significant environmental effects.

2.3.6 25 or 32 km/h (15 or 20 mph) Design Speed for Entire Route

A 25 or 32 km/h (15 or 20 mph) design speed for Bautista Canyon Road was considered but eliminated after review of established design standards because the projected traffic volumes would be too high for this slow of a design speed. Projected traffic volumes indicate a rural collector classification, which requires design speeds of 40-48 km/h (25-30 mph). Furthermore, environmental impacts would be similar to those identified for the proposed action due to the similarity in design criteria and the required curve widening needed to accommodate vehicles tracking around the sharper curves of a slower design speed. Therefore, no advantage (environmental or otherwise) would be realized by selecting this alternative.

2.3.7 Alternative Transit

Alternative means of transit were considered and eliminated from further consideration because of the remote location and the lack of connectivity to other existing mass transit facilities. Additionally, current deficiencies make this unusable as a transit route. As such, transit or other modes of transportation would not meet project objectives, including the provision of a safe vehicle travel route and improved access for emergency vehicles.

2.3.8 Limited Access Alternative

Bautista Canyon Road would be limited to Forest Service access and Native American plant collection from just south of the Conservation camp to just north of Tripp Flats Road. Cul-de-sacs would be constructed at these locations along with access gates. The Forest Service would control the gates at these locations and would coordinate with the Native Americans concerning their access. Alternative routes, SH 74 to SH 371 and/or State Street to Sage Road, would be improved to handle the additional traffic volume diverted from Bautista Canyon Road. The degree of improvements to these roadways would be determined based on the existing roadway’s ability to handle the additional traffic. This alternative was eliminated from further review because it would remove a transportation link in the County's circulation system which is inconsistent with the County's General Plan, specifically with REMAP policy 8.1 and 8.7; it would remove one potential access route out of the Anza Valley in the event of a fire; it would not provide an improved road surface that would allow for faster travel by fire-fighting equipment, improved access by Forest Service enforcement vehicles, and County Sheriff vehicles; it would not allow the public to travel by automobile through a portion of the SBNF (that had been available and planned for such use); it would not allow access to the existing Alessandro Trail; and improvements to SR 74/SR 371 and/or State Street/Sage Road would have potentially significant environmental impacts which would have to be addressed.

2.4 Project Construction

Although the build alternatives (A, B and C) have different alignments, they each have similar design components and construction requirements. These requirements are described below and include surveying, site preparation, bridge construction, grading, paving, installation of drainage facilities, culverts, guardrails, signing, and revegetation.

2.4.1 Construction Schedule

Construction improvements are estimated to require 16 months to complete. Project construction could occur up to 7 days per week for 24 hours per day, but it is more likely the contractor would work Monday through Friday from 6:00 a.m. to 7:00 p.m. A workforce of approximately 20 to 25 personnel would be on-site during a typical workday. In addition to the construction workforce, biological and cultural resource monitor(s) would be on-site during various phases of project construction. The number of workers and duration of their responsibilities is unknown.

During construction, the 8.8 km (5.5 mi) segment between the northern terminus and Tripp Flats Road would be closed to public through traffic. Emergency access would be maintained at all times. Access to Tripp Flats Road would be provided via Carey Road. Bautista Canyon Road would be closed for two 4-hour periods each workday between Tripp Flats Road and Howard Road [located approximately 1.9 km (1.2 mi) north of the southern terminus]. The closures would occur between 8:00 a.m. and 12:00 noon, and from 1:00 p.m. to 5:00 p.m. It is anticipated that 30-minute traffic delays would occur from Howard Road to the southern terminus.

2.4.2 Access and Construction Staging Areas

2.4.2.1 Ingress and Egress

Ingress and egress of construction vehicles would most likely occur from the north through Valle Vista. The number of construction personnel accessing the construction site would vary depending on the construction activities. The average number of personnel vehicle round trips to and from the construction site is estimated to be 50 per day. The number of trucks carrying material and equipment to the site would vary based on the activity. During grading, few materials would be needed; thus, truck traffic would be minimal. As many as 120 truck round trips per day could be required during activities such as aggregate placement and paving. It is anticipated that construction materials, such as aggregate base, concrete, asphalt, and guardrails would be delivered from more populated areas to the north in Riverside and San Bernardino Counties, though specific locations are unknown at this time.

2.4.2.2 Staging Areas

Within the SBNF, staging areas would be located in disturbed areas along the project corridor. With owner permission, the contractor may locate staging areas on private property outside of the SBNF. Staging areas are typically used for construction field trailers, temporary restroom facilities, and storage of construction materials. It is anticipated that aggregate, asphalt, sand, and slurry materials would be stored by local suppliers off-site until these materials are needed for construction. Construction equipment would typically be left overnight at the work areas.

2.4.3 Construction Sequence

Construction equipment used on-site would include various types of trucks (e.g., pickup, dump, water, flat-bed, and concrete mixer) bulldozers, backhoes, excavators, front-end loaders, scrapers, compactors, motor graders, pavers, rollers, power brooms, and diesel-powered electric generators.

2.4.3.1 Site Preparation (Clearing and Grubbing), Excavation, Blasting, and Grading

Site preparation would involve staking, clearing of existing vegetation, hard rock blasting, grading, and spoil removal. Excavation volumes would vary depending upon the alternative and would range from 225,000 m^3 (294,300 yd^3) to 303,000 m^3 (396,300 yd^3) as shown on Table 2.2-1. Cut and fill material would be balanced on-site, thus minimizing truck trips and off-site disposal requirements.

2.4.3.2 Utility Relocation

During site preparation, existing power and fiber-optic cable would need to be relocated. A total of seven power poles owned by the Anza Electrical Cooperative would be relocated outside of the proposed roadway clear zone. This would require an amendment to the existing SBNF Special Use Permit (see Figures 2.2-1 through 2.2-3 for approximate locations). Construction would also require relocation of a fiber-optic cable, which is buried adjacent to the exiting road corridor. Suitable areas to place vaults and manholes would be recommended by the FHWA and coordinated with affected utility companies. Relocation would occur as part of the construction sequence, and thus, would not result in additional disturbance.

2.4.3.3 Aggregate Base Placement

A new crushed aggregate base would be placed and compacted over the prepared subgrade. Guardrail posts would be placed during this phase of construction (see Figure 2.2-6).

2.4.3.4 Asphalt Concrete Pavement

A leveling layer of hot asphalt concrete pavement and an asphalt concrete overlay would be placed and compacted over the aggregate base (see Figure 2.2-6).

2.4.3.5 Revegetation

All disturbed areas, including sections of the existing alignment not abandoned, and all cut slopes in alluvium soil [1(V):1(H) maximum], or fill slopes [1(V):1.5(H) maximum] would be seeded, and/or planted with container specimens, of species native to Bautista Canyon. The FHWA has developed a Conceptual Landscape and Revegetation Plan (Volume II, Appendix F) that would be finalized and approved by the Lead Agencies prior to project implementation.

2.4.3.6 Guardrails

Guardrails would be installed in areas where roadside safety concerns have been identified. These areas are defined as those where road conditions are hazardous compared to the overall roadway characteristics and where the conditions represent a greater safety risk than what drivers may encounter on other segments of the road. These may include changes in roadside topography, curves, and large culvert headwalls. Guardrails would be built using weathered steel (rust colored) to reduce their visual impact.

2.4.3.7 Signing

As noted in Section 2.2.1.2, speed limit signs would be installed along the newly paved segment of road consistent with a signage plan prepared by the County of Riverside. The signage plan would specify speed, identification, and safety signage to be installed along the roadway. At a minimum, the County would install 35 mph limit signs for both the northbound and southbound direction where the design speed of the road is 35 mph (55 km/h). Subsequent to the 35 mph speed limit signs, curve warning signs with appropriate advisory speed limit signs would be installed at selected curves based on a field review after the construction of the road is completed. Curve warning signs with appropriate advisory speed limit signs would be used for the portion with 25 mph (40 km/h) design speed.

2.4.3.8 Crossing Guard Service for Valle Vista Elementary School

During project construction, there may be periods when construction traffic through the intersection of Fairview and Mayberry Avenues, near Valle Vista Elementary School, is particularly high. The contractor retained by FHWA to construct the project would be required, as part of the construction traffic management plan, to provide a crossing guard at this intersection, which is currently controlled by all-way stop signs. The contractor would be required to coordinate with the Principal of Valle Vista Elementary on the deployment of the crossing guard and to inform the Principal of any construction activities that may affect the intersection. The County of Riverside would inform the school of the planned construction schedule.

2.4.3.9 Waste Materials

All hazardous materials (e.g., fuel, oil, and lubricants) and wastes would be stored on-site and properly disposed of in accordance with County standards. Other wastes such as culvert pipe, rock excavation, or other solid materials would be stored on-site and disposed of according to local and state law. The construction contractor would provide an appropriate number of portable, on-site sanitation facilities (i.e., portable restrooms) consistent with state, federal, and local requirements. These facilities would be regularly maintained by disposing of wastes off-site in appropriate sewage treatment systems, and all such facilities would be removed after construction is completed. Per County specifications, the contractor would be required to separate work areas, including material sources, by the use of a dike or other suitable barrier that prevents sediment, petroleum products, chemicals, or other liquid or solid materials from entering drainages or water bodies.

2.4.3.10 Monitoring

In addition to the construction workforce, biological and cultural resource monitor(s) would be present on-site during various phases of construction, as needed. The monitor(s) would be responsible for ensuring mitigation commitments are implemented and that unexpected or inadvertent effects to cultural resources or sensitive biological resources do not occur during construction. A monitoring plan including identification of sensitive species and resources potentially occurring in the project areas would be developed prior to project initiation.

3.0 AFFECTED ENVIRONMENT

This chapter describes relevant existing environmental conditions in the Bautista Canyon Road Project area. Information presented in this chapter serves as baseline data to identify and evaluate any potential effects that could result from implementation of the alternatives under consideration.

In accordance with NEPA, FHWA Guidelines implementing NEPA, and CEQA regulations, an EIS/EIR should focus on those resource areas potentially subject to environmental effects within the geographic scope of potential effects referred to as the study area. As noted, potential effects were studied between logical termini, from the community of Valle Vista to the north to approximately 2.4 km (1.5 mi) west of the community of Anza to the south (see Figure 1.3-2). The scope of analysis ensures that the environmental impact study covers a broader geographic area rather than the strict limits of the transportation improvements. The affected environment is described for the following resources: land use, socioeconomics/environmental justice, traffic/transportation, air quality, noise, biological resources, hydrology/water resources, cultural resources, hazards and hazardous materials, visual resources, recreation, soils/geology, public services/utilities, and fire hazards and risk. This chapter is organized as follows for each environmental topic:

Definition of Resource**.** A brief discussion defines the resource or environmental topic and defines the project study area boundary for each resource or environmental topic.

Existing Setting**.** Information in the existing setting contains a discussion of the local and regional environment conditions (environmental and human-made) in existence at the time this EIS/EIR was prepared. Existing setting information provides the reader with the baseline from which future effects are analyzed and provides a standard against which to measure these effects.

Regulatory Setting. The regulatory setting identifies federal, state, and local plans, policies, and regulations applicable to the subject resource topic.

Thresholds of Significance**.** Determinations regarding the significance of potential effects resulting from implementation of the proposed action are provided. These thresholds represent the criteria used in this EIS/EIR to determine whether identified effects are significant as required by CEQA. Unless otherwise stated, the thresholds of significance listed under each issue area were taken from CEQA Guidelines, Appendix G. Adopted or established federal or state standards for issue areas such as air quality, traffic/transportation, biological and cultural resources, and noise also were used to determine level of significance.

Environmental Consequences**.** An analysis of potential effects of the four alternatives is provided in each section. This discussion focuses on the effects of implementation of the proposed action and includes potential short-term/long-term and direct/indirect project effects, cumulative effects, and unavoidable effects and consistency with applicable planning documents or regulations.

Mitigation Measures. The measures proposed to mitigate any potential effects of the proposed action are identified.

3.1 Land Use

Land use can be separated into two major categories: natural and human-modified. Natural land use includes open or undeveloped areas. Human-modified land use classifications include residential, commercial, industrial, communications and utilities, agricultural, institutional, recreational, and other developed use areas. Land use is regulated by management plans, policies, regulations, and ordinances that determine the type and extent of land use allowable in specific areas and protect specially designated or environmentally sensitive areas. The project study area for land use encompasses the Bautista Management Unit (BMU) of the SBNF and adjacent Riverside County communities (Figure 3.1-1).

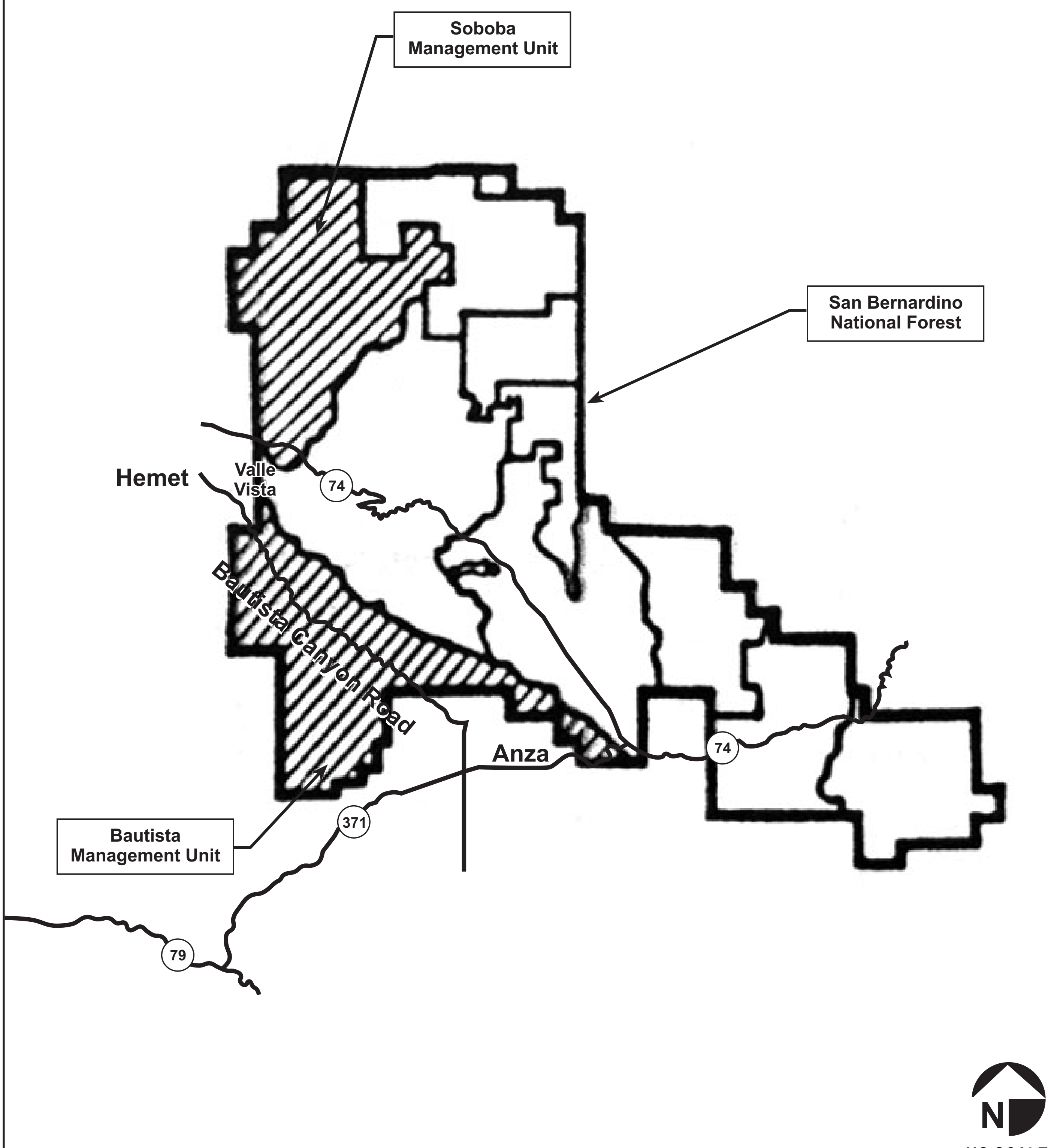
3.1.1 Existing Conditions

The 13.2 km (8.2 mi) segment of Bautista Canyon Road is located mostly within the SBNF in central Riverside County. Thus, the majority of the existing roadway is located on public lands (state and federal). The southernmost 2.3 km (1.4 mi) segment traverses through rural residential and undeveloped private lands. Surrounding land uses are characterized as undeveloped open space and passive recreational lands.

Valle Vista is a small, unincorporated community located adjacent to and east of the City of Hemet at the north project limits. The study area includes the first three blocks along Fairview Avenue within Valle Vista, just south of SH 74 (Florida Avenue). Land use is primarily single-family residential on the east side of the roadway and community facilities (library, community center, and elementary school) on the west side of the roadway. Farther south, land use is mostly undeveloped open space and orchards. Within the SBNF, land use is mainly open space throughout the corridor with exception of the CDC Conservation Camp, which is located at the northern terminus of project improvements. At the southern terminus just north of Anza, land use is primarily rural residential and undeveloped land.

Anza is a large-lot rural residential unincorporated community along SH 371 with commercial services along the highway serving area residents and the traveling public. The school and post office in Anza also serve the community. Basic utilities such as electricity, gas, and water are available in the community, as well as a library and a community center; however, there are no major commercial shopping centers and public facilities and services such as recreation facilities, hospitals/clinics, etc.

The County of Riverside is currently in the process of updating its General Plan. Development densities for unincorporated areas of the County may change with the adoption of a new General Plan. The updated General Plan Land Use Element shows planned land use to be very low-density residential and rural residential at the southern end of the proposed project adjacent to Anza, and the remainder of the area surrounding the project is designated for conservation-habitat use, consistent with current use. These planned land use designations



SOURCE: San Bernardino Forest Land and Resource Management Plan

FIGURE
3.1-1

Soboba Management Area

GRAPHIX/Environmental/Bautista Canyon Road/Mgmt Area.FH8

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take into account the mountain arterial classification of Bautista Canyon Road in the REMAP. Because of land use designations and density restrictions, the County of Riverside anticipates minimal growth in the Anza area through the 2020 planning horizon (County of Riverside 2002a).

SBNF Land and Resource Management Plan (LRMP)

The SBNF Land and Resource Management Plan (LRMP) of 1989 was developed to guide management of the SBNF. The goal of the plan is to provide a management program that reflects a mix of activities that allow use and protection of forest resources; fulfills legislative requirements; and addresses local, regional, and national issues. The plan is reviewed and updated as necessary every 10 to 15 years. The plan divides the SBNF into 15 management areas. As noted, Bautista Canyon Road is located within the Soboba Management Area. As shown in Figure 3.1-1, the Soboba Management Area is divided into two separate units – the Soboba Management Unit to the north and the Bautista Management Unit (BMU) to the south. Bautista Canyon Road is located within the BMU, which totals approximately 11,736 ha (29,000 ac).

Within each management area, the USDAFS has defined Management Emphasis Zones (MEZs). MEZs are used to define areas that would receive particular management consideration when any treatments or activities are applied. Treatments are used mainly to improve wildlife habitat and for watershed protection (e.g., vegetation manipulation by mechanical removal [dozer, chain saw, etc.] or prescribed burning) (Florey 2003). Management considerations vary depending on the MEZ in which the proposed action is located. MEZs for the BMU are defined as custodial, range/wildlife, recreation, and watershed. As shown in Table 3.1-1, the majority of the BMU MEZs emphasize management of wildlife and watersheds. The greatest percentage of the project area is located within a watershed MEZ.

Table 3.1-1
Bautista Management Emphasis Zones

Management Emphasis Zone	Percent of Area Receiving Treatment
Custodial	15%
Range/Wildlife	20%
Recreation	5%
Watershed	60%

Source: USDAFS (1989a)

3.1.2 Regulatory Setting

Federal

SBNF Land and Resource Management Plan

The SBNF LRMP establishes goals that provide a broad, overall direction for the management of resources within the forest. The following Plan goals would apply to the proposed action:

Air Quality

- *Emphasize protection of air quality in a manner consistent with state and federal air quality objectives.*

Diversity

- *Maintain natural diversity by emphasizing the use of native trees and shrubs for revegetation.*
- *Maintain the current distribution of plant and animal species.*

Facilities

- *Provide a Forest transportation system for administrative access and a variety of public uses.*

Historical and Cultural Resources

- *Inventory, protect, evaluate and enhance historical and cultural resources in accordance with legislative and administrative direction.*

Law Enforcement

- *Maintain cooperation with other law enforcement agencies.*

Recreation

- *Provide a wide range of developed and dispersed recreation opportunities with a shift toward day-use activities.*
- *Expand interpretive services program and activities.*

Riparian Areas

- *Protect and enhance riparian areas, giving emphasis to riparian dependent resources.*
- *Maintain water flow needed to support aquatic and riparian areas and dependent uses.*

Soils

- *Maintain long-term soil productivity and prevent permanent degradation of soils.*

Water

- *Maintain and enhance water quality to meet or exceed beneficial use requirements.*

Wildlife, Fish, and Sensitive Plants

- *Protect and improve habitats of threatened and endangered plants and animals to aid in the recovery of the species in cooperation with state and other federal agencies.*
- *Maintain and improve habitats of emphasis species.*

SBNF LRMP Lawsuit Settlement Agreement

On June 14, 1998, the Southwest Center for Biological Diversity filed a lawsuit against SBNF and three other National Forests in southern California on grounds of: (1) failure to consult with the USFWS under section 7 of the Endangered Species Act on the LRMPs for each forest; and (2) failure to consult on individual and ongoing actions that implement the LRMPs. As a result, consultation was initiated under a consultation agreement formalized between the USFS and USFWS on August 19, 1998. The August 19 agreement was superceded on January 15, 1999, by an updated agreement titled the "Southern California Conservation Strategy-Consultation Strategy." Pursuant to the new consultation strategy, the USFS initiated consultation on all four LRMPs on January 30, 1999. On March 1, 2000, the USFS reached a settlement agreement with the Southwest Center for Biological Diversity. Under the terms of the settlement agreement, the USFS is required to carry out specific actions to protect habitat, listed species, and species proposed for listing in the four southern California national forests. The protective measures required by the settlement agreement would apply to the proposed action. Protective measures relative to actions associated with the proposed project have been coordinated with SBNF. Project elements and mitigation measures would be consistent with applicable protective measures.

Local

County of Riverside General Plan/REMAP

Bautista Canyon Road is located within the General Plan REMAP area of Riverside County (see Figure 3.1-2). The REMAP defines the general study area as the Bautista Management Area (BMA). Land use within the northern and central portions of the BMA is defined as Open Space and Conservation Areas. Within the southeastern portion of the BMA, land use is defined as Rural Area. The Anza community is defined as a Village Area. Bautista Canyon Road is shown as a circulation facility, which transverses through the BMA.

The County Board of Supervisors establishes policy guidance for each of the planning areas of Riverside County including the REMAP area with the intent to enhance and/or preserve the identity, character, and features unique to REMAP. The following General Plan policies apply to the proposed action:

Area Plan-Wide

REMAP 3.20 *Locate, operate and maintain public services and facilities in a manner that will not degrade environmental quality.*

Noise

REMAP 6.1 *Protect the environment in REMAP through adherence to the Noise Sensitive Land Uses section of the General Plan Noise Element.*

Local Circulation

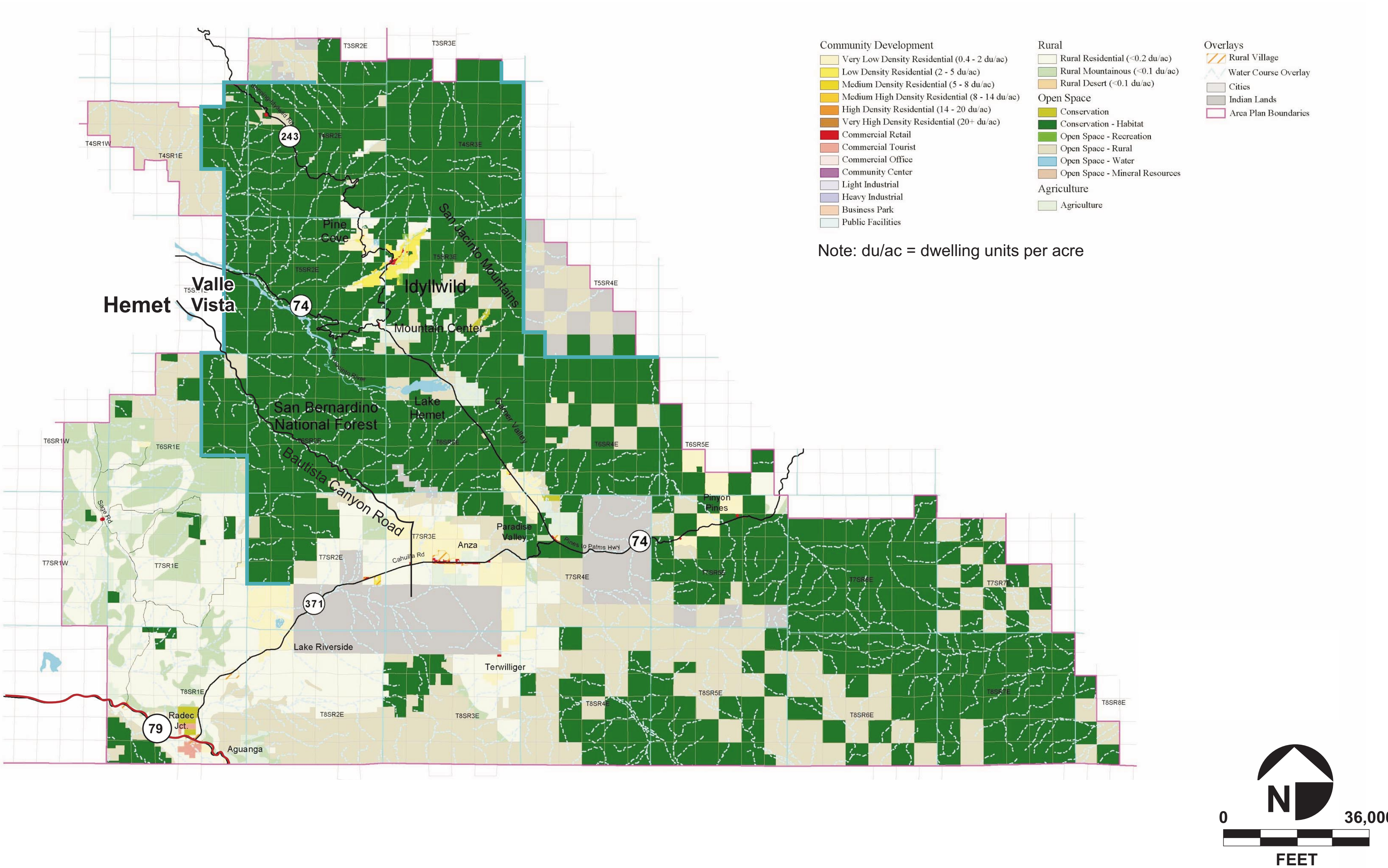
REMAP 8.1 *Design and develop the vehicular roadway system per Figure 6 of the General Plan Circulation element, and in accordance with the Functional Classifications and Standards in the System Design, Construction and Maintenance section of the General Plan Circulation Element.*

REMAP 8.2 *Maintain the County's roadway Level of Service standards as described in the Level of Service section of the General Plan Circulation Element.*

REMAP 8.3 *Separate vehicular traffic from pedestrian and equestrian traffic, in order to avoid potential hazards, and where traffic volumes justify the costs.*

REMAP 8.4 *Preserve natural resources, including scenic values, and avoid the unnecessary destruction of trees and flora in all future plans for development or improvement of circulation-transportation facilities.*

REMAP 8.7 *Consider emergency access and circulation, paying special attention to seasonal traffic, in fire hazard areas.*



FIGURE

3.1-2

Remap Land Use Plan

GRAPHIX/Environmental/Bautista Canyon Road/Land Use Plan.FH8

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Multiple Species Habitat Conservation Plans (MHCPs) – Key Biological Issues

REMAP 11.2 *Conserve existing wetlands and wetlands functions and values in the REMAP portion of the upper San Jacinto River, Bautista Creek, Tule Creek, Temecula Creek, Cottonwood Creek, Wilson Creek, Cahuilla Creek, Tucalota Creek and Willow Canyon Creek with a focus on conserving existing habitats in the river and creeks.*

REMAP 11.6 *Conserve open stream courses and adjacent coastal sage scrub, grasslands and chaparral supporting southwestern arroyo toad, with a focus on suitable breeding, foraging, and/or aestivating habitats along Temecula Creek, upper San Jacinto River and Bautista Canyon.*

REMAP 11.7 *Conserve existing habitat values of the upper San Jacinto River and Bautista Creek for the benefit of San Bernardino kangaroo rat.*

Local Hazard – Flooding and Dam Inundation

REMAP 13.1 *Adhere to the flood proofing and flood protection requirements of the Flood Management Review Board.*

REMAP 13.4 *Protect life and property from the hazards of potential dam failures and flood events through adherence to the Flood and Inundation Section of the General Plan Safety Element.*

Seismic

REMAP 15.1 *Protect life and property from seismic related incidents through adherence to the Seismic Hazards section of the General Plan Safety Element.*

State/Local

Farmland

No known prime farmland, unique farmland, statewide or locally important farmland is located within the project study area.

Other Landowners/Uses

The CDC Bautista Conservation Camp is located to the west of Bautista Canyon Road near the north end of the project study area at the Horse Creek and Bautista Creek junction. The Department of Corrections and the Department of Forestry and Fire Protection run the camp jointly.

The SBNF Tripp Flats Forest Service Station and a privately-owned landing strip is located west of Bautista Canyon Road toward the south end of the project area (see Figure 1.3-2). No public facilities, with the exception of utilities, are located within the project's southern terminus area.

3.1.3 Thresholds of Significance

The proposed action would result in a significant impact to the environment if it would:

- physically divide an established community;
- conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or
- conflict with any applicable habitat conservation plan or natural community conservation plan.

3.1.4 Environmental Consequences

3.1.4.1 Alternative A

Direct Effects

Alternative A would not divide an established community. The existing roadway traverses primarily open space lands within the SBNF. No new roadway corridor would be established. There are no communities within the study area and no project improvements would occur in proximity to the logical termini located at Valle Vista and Anza.

Alternative A would not conflict with applicable land use or habitat conservation plans. As noted, the roadway is a planned mountain arterial route within the REMAP Circulation Plan; however, it would remain classified as a rural collector. The County of Riverside considers the functional classification of rural collector consistent with the mountain arterial standard. Thus, Alternative A would be consistent with local circulation REMAP policies described above (REMAP 8.1, 8.2, 8.3, 8.4, 8.7, 13.1, 13.4, and 15.1). It is anticipated that the proposed action would result in additional traffic being diverted onto Bautista Canyon Road as a result of the implementation of Alternative A. However, traffic volumes would not be great enough to require reclassification of the roadway. Section 3.3 of this document provides a more detailed discussion of traffic/transportation effects. No impact to prime, unique, or statewide or locally important farmland would occur as a result of the implementation of Alternative A.

Private property would need to be acquired from four landowners. The area acquired from private property owners would total 20.8 ha (51.4 ac). An additional 20.8 ha (51.4 ac) of state-owned land at the California Department of Corrections (CDC) Bautista Conservation Camp would also need to be acquired. Up to 20.8 ha (51.4 ac) of additional easement would be acquired from the SBNF. While these properties would be converted to paved roadway or otherwise modified during construction, the total area of disturbance (20.8 ha [51.4 ac]) would not represent a significant adverse land use impact. Segments of the existing unpaved roadway that are not part of the Alternative A alignment would be revegetated and converted back to open space use.

Secondary Effects

The reconstruction of Bautista Canyon Road could contribute to growth in the Valle Vista and Anza communities. However, it is not anticipated that the growth would be significant based on the functional roadway design characteristics of the proposed action. The roadway would remain a two-lane rural collector with relatively low speed limits which is consistent with the Mountain arterial designation in the County Plan, based on County Standard No. 100C. In addition, the majority of the land fronting the roadway is SBNF land as opposed to private land that could be developed consistent with local plans and regulations. Land under USDAFS jurisdiction would not be developed as a result of access improvement. Regardless of roadway improvements, the development of private land within the Bautista Canyon Road corridor and in proximity to Valle Vista and Anza would be subject to goals and objectives contained in the Riverside County General Plan and current development restrictions. Thus, any growth-inducing effects associated with implementation of the proposed action would be managed consistent with the General Plan and related development regulations.

Thus, no significant adverse land use effects are anticipated as a result of the implementation of Alternative A.

3.1.4.2 Alternative B

Right of way requirements would be the same as those described for Alternative A, except disturbance to SBNF land would total approximately 19.4 ha (47.9 ac). Land use effects would be similar to those described for Alternative A.

3.1.4.3 Alternative C

Right of way requirements would the same as described for Alternative A, except disturbance to SBNF land would total approximately 18.8 ha (46.5 ac). Land use effects would be similar to those described for Alternative A.

3.1.4.4 Alternative D

Under the No Action alternative, improvements to Bautista Canyon Road would not occur. Existing conditions would remain the same as described above in Section 3.1.1. Per REMAP land use assumptions, large-lot residential development is anticipated to occur south of the project study area near Anza. No changes to land use are anticipated within the existing corridor. Thus, no land use impact would occur under implementation of Alternative D.

3.1.5 Mitigation

No mitigation would be required.

3.2 Socioeconomics/Environmental Justice

This section provides a description of the social and economic characteristics of the Hemet/Valle Vista and Anza communities, which are located at the project's northern and southern logical termini. The purpose of this section is to evaluate potential social and economic effects associated with the alternatives being considered. This discussion includes information on population, ethnicity, income, housing supply, employment and business activity, land use characteristics, and density. This information is based on projections formulated by the SCAG and the proposed Hearing Draft of the General Plan REMAP of Riverside County.

3.2.1 Existing Conditions

Socioeconomics

As noted, the first three blocks along Fairview Avenue, just south of SH 74 (Florida Avenue), consist of mainly single-family residential homes. There are also several community facilities (library, community center, and elementary school) on the west side of the roadway. Open space and orchards are located adjacent to the roadway from approximately 1.0 km (0.6 mi) south of SH 74 to the unpaved section. The unpaved portion of Bautista Canyon Road traverses south through the open space land in the SBNF until it reaches the southern terminus just north of Anza. The southern 1.6 km (1.0 mi) of the project study area consists of mainly rural residential and undeveloped land.

<u>Valle Vista</u>

Approximately 15 percent (1,539) of Valle Vista's 10,488 residents are Hispanic or Latino. Other ethnic populations in Valle Vista include approximately 1 percent Black, 1 percent Asian, and 1 percent American Indian or Alaskan Native populations. Approximately one-third (32 percent) of the population is over 65 years of age and one-third (32 percent) is between 35 and 64 years of age. Of the 2,434 students enrolled in school, 49 percent are in elementary school (grades 1-8). Of the population over 25 years of age, approximately 80 percent have graduated from high school and have received some form of higher education, although only 12 percent have earned a bachelor's degree or higher. Of the total families (2,931) in Valle Vista, approximately 9 percent have an income below the poverty level.

The community of Valle Vista has a total of 4,941 housing units. There are approximately 4,510 households in Valle Vista. Based on Census 2000 data, the average household size is 2.3 and the average family size is 2.9.

Approximately 29 percent of the labor force is in management, professional, and related occupations. The largest employer in Hemet/San Jacinto Valley is the public sector. The Hemet Valley Hospital District is the largest employer followed by the Hemet Unified School District. The five largest private employers are Deutsch Engineering, Verizon California, San Francisco Home Care, Target, and Home Depot. The median household income for the Valle Vista area is $32,455 (Census 2000).

Anza

Anza is a large-lot, rural residential community in unincorporated Riverside County. Commercial services are located along SH 371. Anza has one school, Hamilton School (K through 12), and a post office that serves the community. Standard utilities and services are available. Anza has one food market, one gas station, a hardware store, and a convenience store (About Anza 2003). Data from the County of Riverside General Plan shows a 1997 total population of approximately 1,339 for the REMAP area that includes Anza (County of Riverside 2002a).

No Census or other related socioeconomic data are available for the Anza community; however, Census 2000 data for Riverside County as a whole is considered representative of the unincorporated areas. Approximately 36 percent (559,575) of Riverside County's 1,545,387 residents are Hispanic or Latino. Other ethnic populations in Riverside County include approximately 7 percent Black, 4 percent Asian, and 1 percent American Indian or Alaskan Native populations. Approximately 13 percent of the population County-wide is over 65 years of age, and about 35 percent is between the ages of 35 and 64. Approximately 48 percent of students enrolled in Riverside County schools are in elementary school (grades 1-8). Of the population over 25 years of age, approximately 75 percent have graduated from high school, though only about 17 percent have earned a bachelor's degree or higher. The median household income in Riverside County is $42,887. Nearly 11 percent of the families in Riverside County have an income below the poverty level (Census 2000).

Growth Trends

Based on the latest Census 2000 data, Riverside County experienced a 32 percent increase in population between 1990 and 2000. This rate of growth is expected to continue for the next 25 years. The 1997 population within unincorporated areas in western Riverside County was estimated as 299,939 persons (County of Riverside 2002a). SCAG 2001 RTP baseline projections for western unincorporated Riverside County estimate a 2025 population of 771,595. This represents approximately 225 percent growth over 2001 conditions, which equates to approximately 9.4 percent annually (SCAG 2002).

Population trends from 1990 to 2000[1] show a 63 percent increase in population in Hemet, but only an 11 percent increase in the unincorporated area of Riverside County, which includes the community of Anza.

Community Services/Facilities

There are three public facilities located within the route's northern terminus area in the community of Valle Vista:

[1] At the time the General Plan update was prepared, only a small portion of the 2000 Census results was available. Therefore, data from the 1990 Census were also used.

- **Valle Vista Library** is located at 43975 East Florida Avenue on the southwest corner of Florida Avenue and Fairview Avenue.
- **Valle Vista Community Center** is located about three blocks south of the Valle Vista Library at 43935 East Acacia Avenue and on the northwest corner of Acacia Avenue and Fairview Avenue. The community center is a 1,370-square-meter (m^2) (14,750-square-foot [ft^2]) facility that includes a gymnasium, multipurpose activity rooms, a day care area, public restrooms, offices, conference rooms, and full kitchen facilities. Future expansion would include sports fields and an outdoor children's play area. A sheriff's substation and County office building is located adjacent to the community center.
- **Valle Vista Elementary School** is located to the south of the Valle Vista Community Center at 43900 Mayberry Avenue and on the northwest corner of Mayberry Avenue and Fairview Avenue. The school has an enrollment of approximately 824 students in grades K through 5 according to the Hemet Unified School District. Student ethnic distribution roughly matches the community distribution with a 10 percent higher representation of Hispanics. The student distribution consists of 69 percent White, 25 percent Hispanic, 4 percent Asian, 1 percent Black, and 1 percent American Indian or Alaskan Native.

Native American Populations

There are two reservations within the vicinity of the project area: the Cahuilla Indian Reservation and the Ramona Indian Reservation. Low-intensity land uses exist on these reservations with the exception of Cahuilla Creek Casino located along SH 371, southwest of Anza (County of Riverside 2002a).

Cahuilla Indian Reservation. The federal reservation of Cahuilla Indians is located approximately 3 km (2 mi) west of the community of Anza off of SH 371. The reservation totals 18,884 acres, with 2,000 acres belonging to the tribe in common and the remainder assigned to individual members of the Cahuilla band. The population on the reservation is approximately 175 (AIHF 1999). No project improvements would occur on reservation lands.

Ramona Indian Reservation. The federal reservation of Ramon Indians is located approximately 4 km (2.5 mi) north of the community of Anza within the SBNF. The reservation totals 560 acres with a population of seven tribal members. Four of the tribal members are under age 18, one is over age 21, and two are over age 40. No project improvements would occur on reservation lands.

3.2.2 Regulatory Setting

Executive Order (EO) 12898*, Federal Actions to Address Environmental Justice in Minority and Low-income Populations*, and EO 13045*, Protection of Children from Environmental Health Risks and Safety Risks*, direct each federal agency to identify and assess disproportionately high and adverse human health or environmental effects on minority populations and low-income populations and to identify and assess environmental health risks that may disproportionately affect children. This discussion addresses environmental justice issues between the logical termini as defined in Chapter 1 of this document.

3.2.3 Thresholds of Significance

The proposed action would result in a significant impact to the environment if it would:

- physically divide an established community;
- result in disproportionately high and adverse health or environmental effects on minority or low-income populations including Native American tribes;
- result in disproportionately high and adverse environmental health risks to children;
- result in changes in the neighborhoods or community cohesion for various social groups;
- result in changes to travel patterns and accessibility (e.g., vehicular, commuter, bicycle, or pedestrian);
- result in effects on school districts, recreation areas, churches, businesses, and police and fire protection services; or
- result in the relocation or displacement of households.

3.2.4 Environmental Consequences

3.2.4.1 Alternative A

As discussed in Section 3.1 of this document, Alternative A would not divide an established community. All construction would occur in undeveloped areas and generally within an established corridor. No housing or commercial facilities would be displaced or otherwise affected by project implementation.

As described in Section 3.3, each of the build alternatives would cause a short-term increase in truck traffic during construction. An estimated average of 50 construction worker round trips and 120 truck round trips could occur daily during some phases of construction, such as aggregate placing and paving, though this elevated level of construction related traffic is only expected for a few weeks. Neighborhood children walking to the Valle Vista Elementary School use a crosswalk at Fairview Avenue and Mayberry Avenue in the morning and early afternoon. There is currently no crossing guard; however, there is a 4-way stop sign at this intersection and Children Crossing signs posted along Fairview Avenue. The nearest crosswalk with a crossing guard is located at the intersection of Florida Avenue (SH 74) and Fairview Avenue, four blocks north of the school (Normandin 2002).

The temporary increase in truck traffic poses a safety concern for children crossing at the Fairview Avenue and Mayberry Avenue crosswalk; however, the existing 4-way stop sign and advisory signs posted along Fairview Avenue would continue to minimize risks. Additionally, as noted in Section 2.4.3.8, the contractor retained by FHWA to construct the proposed project would be required, as part of the construction traffic management plan, to provide a crossing guard at the Fairview Avenue/Mayberry Avenue intersection during construction, and to coordinate with the Principal of Valle Vista Elementary School regarding construction activities that may affect the safety of school children at this intersection.

During operation, Alternative A is projected to result in higher overall traffic volumes along the roadway. As noted, there are a number of residences and public facilities (i.e., elementary school, library, Riverside County building) located along Fairview Avenue in the Valle Vista area. While traffic volumes here are projected to increase from the existing 346 ADT to 1,790 ADT after project implementation (year 2025), the proportionate increase is not anticipated to pose environmental health or safety risks to children or residents living in or visiting the area. Furthermore, the project is not anticipated to adversely affect safety, the provision or demand for public services, or otherwise impact socioeconomic resources. Implementation of Alternative A would not result in significant adverse change to travel patterns or accessibility to public services.

Alternative A would not disproportionately affect the health or environment of minority or low-income populations, or disproportionately increase health risk for children. Demographic data County-wide and for Valle Vista are similar. Ethnic populations make up a lesser percentage of the total population in Valle Vista than are found County-wide. Approximately 15 percent of Valle Vista residents are Hispanic or Latino, compared to approximately 36 percent of the total County population. As noted above, other ethnic populations in Valle Vista include approximately 1 percent Black, 1 percent Asian, and 1 percent American Indian or Alaskan Native populations. These groups make up approximately 7, 4, and 1 percent, respectively, of the total County population. Approximately 9 percent of families in Valle Vista have an income below the poverty level, compared to approximately 11 percent of the total families in Riverside County. Likewise, students enrolled in elementary school make up 11 percent of the Valle Vista population, compared to approximately 14 percent of the total County population. The similar distribution of minority, low-income, and elementary school-aged populations in the project area compared to County-wide populations demonstrates that the project would not disproportionately affect these groups.

3.2.4.2 Alternative B

Socioeconomic/environmental justice effects would be similar to those described for Alternative A.

3.2.4.3 Alternative C

Socioeconomic/environmental justice effects would be similar to those described for Alternative A.

3.2.4.4 Alternative D

Under the No Action alternative, improvements to Bautista Canyon Road would not occur. Existing conditions would remain the same as those described above in Section 3.2.1. Therefore, socioeconomic/environmental justice effects would not occur as a result of implementation of Alternative D.

3.2.5 Mitigation

Project construction requirements would include placement of a crossing guard in the mornings and afternoons at the intersection of Fairview Avenue and Mayberry Street during project construction to minimize the safety risk to children who cross the street(s) on their way to and from school. There are no direct routes to the project area that avoid the intersections that are of most concern for child safety.

As noted, no impacts to socioeconomic resources are anticipated to occur during operation of the proposed project. Therefore, no mitigation measures are proposed.

3.3 Traffic/Transportation

3.3.1 Existing Conditions

As noted in Chapter 1, Bautista Canyon Road is functionally classified as a rural collector. The existing 13.2 km (8.2 mi) unpaved segment is in poor condition and, thus, does not carry the volume of traffic consistent with this designation. As shown in Table 3.3-1, traffic counts indicate that 61 to 346 vehicles use the roadway daily. Use is dependent on location, with higher volumes occurring near the north logical termini in Valle Vista, and volumes decreasing farther south.

Existing Traffic Volumes

Urban Crossroads, Inc., prepared a traffic volume analysis in April 2002 to accurately describe existing conditions and project traffic volumes on Bautista Canyon Road for year 2025 conditions (UCI 2002). Traffic counts were conducted during February 2001 at three locations between the logical termini: on Bautista Canyon Road just east of Fairview Avenue, at the CDC Bautista Conservation Camp, and just south of Tripp Flats Road (see Table 3.3-1).

Table 3.3-1
Existing Traffic Volumes

	(ADT)					
Segment	**Mon.**	**Wed.**	**Thurs.**	**Fri.**	**Sat.**	**Baseline**
East of Fairview Avenue (north)	–	346	–	–	222	346
CDC Bautista Conservation Camp (central)	–	–	138	–	88	138
South of Tripp Flats Road (south)	61	–	–	29	–	61

Source: Counts Unlimited, Inc. 2002

ADT – average daily traffic

Projected ADT volumes on Bautista Canyon Road for opening year (2006) and design year (2025) are shown in Table 3.3-2. Also shown are 2025 ADT volumes predicted under the No Action alternative.

Table 3.3-2
Traffic Volume Projections

Segment	Existing ADT	No Build Year 2025 ADT	Opening Year (2006) ADT*	Design Year (2025) ADT	Design Year (2025) Nighttime ADT**
East of Fairview Avenue (north – currently paved)	346	779	600	1,790	340
Bautista Conservation Camp (central – northern end of unpaved segment)	138	311	400	1,320	250
South of Tripp Flats Road (south – currently unpaved)	61	137	300	1,150	220

Source: Urban Crossroads, Inc. 2002

* Opening year ADT volumes include the potential diversion of up to 450 vehicles per day from the SH 371/SH 74 to Bautista Canyon Road.
** Forty-four percent of nighttime activity occurs between 6:00 a.m. and 7:00 a.m.
ADT – average daily traffic

Existing Travel Times

Bautista Canyon Road serves as one of three possible routes between the communities of Valle Vista and Anza. Travel distances and travel times have been determined for the alternate routes from downtown Hemet to the community center in Anza. The shortest distance is 43.5 km (27 mi) using Bautista Canyon Road as the primary route of travel. However, because travel times are reduced on the 13.2 km (8.2 mi) unpaved segment of Bautista Canyon Road, the total travel time along this route is approximately 49 minutes (see Table 1.4-1).

The next shortest route is 59 km (36.6 mi) along SH 74 to SH 371. This route has the shortest travel time (47 minutes) (see Table 1.4-1); however, this route requires traveling through the mountain communities of Garner Valley and Mountain Center where impediments to through traffic flow (e.g., stop signs, traffic signals, cross traffic) are encountered.

The third route evaluated involves travel along State Street and Sage Road for a total distance of 65.3 km (40.6 mi) (see Table 1.4-1). This route has longer travel time (56 minutes) and distance than the alternative routes discussed above.

Safety

As noted in Section 1.4.7, a review of collision history for the existing unpaved segment of Bautista Canyon Road shows a total of 19 reported accidents on this road segment from November 1, 1994, to October 31, 2003, including 8 collisions involving fatalities or injuries. The collision rate for the existing unpaved segment during that ten-year period is 10.4 accidents per million vehicle miles (MVM).

3.3.2 Regulatory Setting

County of Riverside General Plan

While the current functional classification is a rural collector, the County General Plan identifies Bautista Canyon Road as a future "mountain arterial" roadway (see Figure 3.3-1). The functional classification of the route is one of the parameters that determine what design criteria are appropriate to use for proposed improvements. A collector roadway has a lower Level of Service (LOS) standard than an arterial due to the differing roles of each in the transportation system. LOS is a qualitative measurement of a roadway operation, with designations ranging from A to F. LOS A is typically characteristic of free-flowing conditions while LOS F is characteristic of highly congested conditions. LOS C represents reasonably free-flowing conditions and is used as a criterion for planning purposes. Based on projected traffic volumes and LOS requirements, the functional classification as a rural collector is considered appropriate and would provide an adequate LOS for the foreseeable future. The projected design year 2025 ADT at Fairview Avenue would be only 17 percent of a two-lane rural collector operating at LOS C, and only 14 percent of LOS C ADT based on a mountain arterial design standard. Therefore, projected traffic levels do not warrant improving the route to an arterial classification.

County of Riverside General Plan/REMAP Local Circulation Policies

The purpose of the circulation system within REMAP is to provide for the movement of people and commodities efficiently, economically, and safely while not inducing growth beyond the intent of the General Plan or disrupting the unique environment within the planning area. REMAP policies relevant to the proposed project are provided in Section 3.1.1.

3.3.3 Thresholds of Significance

The proposed action would result in a significant impact to the human environment if it would:

- cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volumes to capacity ratio on roads, or congestion at intersections);
- exceed, either individually or cumulatively, an LOS standard established by the County of Riverside Congestion Management Agency for designated roads or highways;
- substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- result in inadequate emergency access;
- result in inadequate parking capacity; or
- conflict with the adopted policies, plans, or programs supporting alternative transportation.

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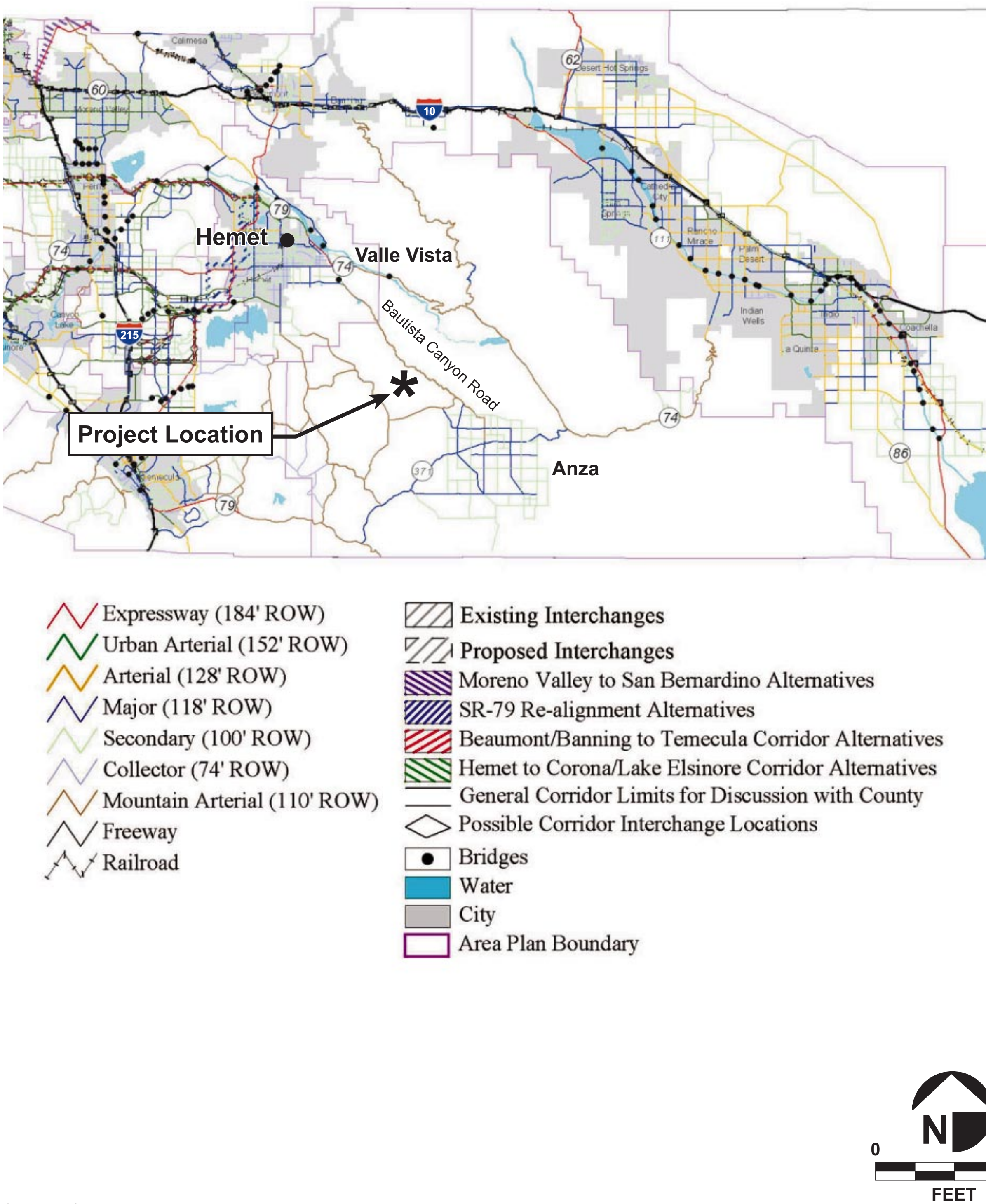

SOURCE: County of Riverside

FIGURE 3.3-1

Circulation Plan

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3.3.4 Environmental Consequences

Short-Term Effects (Alternatives A, B, and C)

Project construction could temporarily add an additional 120 truck round trips per day on Bautista Canyon Road. Trucks needed to haul equipment and materials to the study area would likely enter the site from the north. As noted, the increase in truck traffic along Fairview Avenue would be temporary and accommodated without disruption to LOS.

Construction of Alternative A, B, or C would not affect travel patterns and accessibility (e.g., vehicular, commuter, bicycle, or pedestrian) to residences or public services in Valle Vista. However, during construction Bautista Canyon Road would be closed to through traffic between the CDC Bautista Conservation Camp and Tripp Flats Road for approximately 16 months as described in Section 2.4.1. The proposed road closure would not cause adverse conditions as the current traffic volumes on this segment of Bautista Canyon Road are low and alternative routes between Valle Vista and Anza are available. Signs would be posted near the logical termini notifying motorists of any closures, times, and detours. A short-term closure would not result in an adverse effect due to the low current traffic volumes and available alternate routes, as well as the improved efficiency and safety of travel along Bautista Canyon Road upon project completion.

Opening Year Volume Projections (Alternatives A, B, and C)

Upon completion of the proposed project, it is projected that between 300 and 600 vehicles would use some portion of Bautista Canyon Road daily. As discussed in the traffic volume analysis (Volume II, Appendix E), approximately 56 percent of the vehicles that travel between Valle Vista and Anza via SH 371/SH 74, rather than Bautista Canyon Road, would use this improved route between Valle Vista and Anza during its opening year, which is anticipated to be 2006. At opening year, the northern segment of Bautista Canyon Road is estimated to accommodate 600 vehicles per day. The central segment is projected to accommodate 400 vehicles per day, and the southern segment (south of Tripp Flats Road) is estimated to accommodate 300 vehicles per day (UCI 2002).

2025 Traffic Volume Projections (Alternatives A, B, and C)

Design year 2025 traffic projections for Bautista Canyon Road, east of Fairview Avenue, at the CDC Bautista Conservation Camp, and just south of Tripp Flats Road, have been determined by combining the existing baseline volumes with a traffic diversion volume of 450 vehicles from SH 371/SH 74 to Bautista Road and increasing the “with diversion” value by a factor of 2.25 at each location to adjust for 2025 population growth (UCI 2002). The northern segment of Bautista Canyon Road, east of Fairview Avenue is projected to accommodate approximately 1,790 vehicles per day in 2025. The central segment, north of the CDC Bautista Conservation Camp, is projected to accommodate a daily volume of 1,320 vehicles, and the southern segment (south of Tripp Flats Road) is estimated to accommodate 1,150 vehicles in 2025 (UCI 2002). For comparison, if the project is not built, the projected traffic for each of these segments in 2025 is 779 ADT along the northern segment of Bautista Canyon Road, east of

Fairview Avenue; 311 along the central segment, north of the CDC Bautista Conservation Camp; and 137 along the southern segment, south of Tripp Flats Road (see Table 3.3-2).

As noted, truck traffic on SH 371 west of Bautista Canyon Road is 2.3 percent of the total. Applying the existing percentage of truck traffic of 2.3 percent to the potential diversion of an additional 450 vehicles per day from SH 371/74 to Bautista Canyon Road would result in an additional 10 truck trips daily in 2006. Thus, the projected number of daily truck trips (0.023 x 1,150) would be 26 in year 2025.

Additional traffic is anticipated to be diverted onto Bautista Canyon Road (1 to 2 percent) from Florida Avenue (SH 74) to Fairview Avenue once the project is completed with the implementation of any of the build alternatives; however, the increase in traffic is not considered significant because anticipated traffic volumes would not exceed design capacity for a rural collector.

The majority of traffic on Bautista Canyon Road currently occurs during daylight hours. The project would not include lighting, call boxes, or other services that might encourage nighttime traffic. Thus, the majority of future traffic is projected to occur during daylight hours, with only approximately 19 percent of the projected design year traffic occurring between 8:00 p.m. and 7:00 a.m., as shown in Table 3.3-2.

County staff has estimated that the paving of Bautista Canyon Road would increase the average speed of the reconstructed segment to approximately 53 km/h (33 mph) based on the 55/40/55 km/h (35/25/35 mph) design speed. This would meet the Valle Vista/Anza system linkage objective, as Bautista Canyon Road would have the shortest travel distance (43.5 km [27 mi]) and shortest travel time (43 minutes) as compared to the other roadway alternatives identified in Table 1.4-1. Table 3.3-3 shows the projected travel time along the reconstructed segment under each of the build alternatives. The route would remain a rural collector with relatively low travel speeds and many curvilinear segments. It would not serve as a thoroughfare route to destinations other than Anza or Hemet/Valle Vista.

Table 3.3-3
Travel Time Comparison

Alternative	Design Speed	Travel Time (minutes)	Difference
A	40 km/h (25 mph)	20	Baseline
B	55 km/h (35 mph)	14	6 minutes less
C	55/40/55 km/h (35/25/35 mph)	17	3 minutes less

km/h – kilometers per hour
mph – miles per hour

3.3.4.1 Alternative A

Alternative A would not cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system. As noted, for opening year (2006) conditions, the Bautista Canyon Road ADT volumes are projected to increase to levels that are between 300 and 600 vehicles per day. For 2025 conditions, the Bautista Canyon Road ADT volumes are projected to increase to levels that are between 1,150 and 1,790 vehicles per day depending upon location. Review of traffic turning movements at the SH 371/SH 74 and the SH 74 and SH 243 intersections indicates that there is a potential diversion of up to 450 vehicles per day from SH 371/SH 74 to Bautista Canyon Road in the year 2005 (UCI 2002). This represents approximately 15 percent of the current SH 371 volume of 3,000 vehicles per day east of Anza. Of the total increase in number of vehicles by 2025, truck traffic could increase by 26 trucks per day. These design year traffic volume projections, though, are well within the capacity of a two-lane rural collector (11 to 17 percent) and the existing roadway network.

Implementation of Alternative A would not individually or cumulatively exceed a LOS standard established by the County of Riverside for designated roads or highways. As noted, the projected traffic volumes for Bautista Canyon Road are well within the capacity (11 to 17 percent) of a two-lane rural collector designation; and therefore, would not significantly affect LOS as defined above.

Implementation of Alternative A would not substantially increase hazards due to design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment). In fact, it would improve safety and sight distance for Bautista Canyon Road by reconstructing the unpaved segment to current design standards.

Implementation of the proposed action would not result in inadequate parking capacity because the proposed project is a transportation facility and does not generate the need for parking capacity. However, new parking lots are proposed at the interpretive overlook and Alessandro Trailhead to accommodate overlook and trail users. Each parking area would accommodate five vehicles and would be approximately 0.1 ha (0.3 ac) in size.

Finally, the Zegeer crash prediction model (FHWA 1987) for 2-lane highways predicted that improving the roadway as proposed would decrease the crash rate to 1.7 per MVM for the year 2025, using the projected ADT of 1150 (see Table 1.4-2 and Section 1.4.7).

<u>County of Riverside General Plan/REMAP</u>

Alternative A would not create inadequate emergency access or inadequate parking capacity because the proposed action is a roadway reconstruction project that would improve emergency access. Parking along Bautista Canyon Road is neither proposed nor would be required.

Alternative A is consistent with the County of Riverside General Plan and REMAP local circulation policies (see Section 3.1.2). The proposed 13.2 km (8.2 mi) segment of Bautista Canyon Road would be reconstructed in accordance with the Functional Classifications and Standards in the System Design, Construction and Maintenance section of the General Plan

Circulation Element (REMAP 8.1). Bautista Canyon Road will be constructed as a two-lane road which is consistent with the mountain arterial designation in the County Plan, based on County Standard No. 100C. Alternative A would maintain the County's LOS standards (REMAP 8.2), and would separate vehicular traffic from pedestrian and equestrian traffic where traffic volumes justify the costs (REMAP 8.3). The proposed alignment has been developed to avoid sensitive biological and cultural resources and would provide safer and improved access for motorists as well as for emergency vehicles REMAP 8.4 and 8.7).

Operation of Alternative A would remain within capacity standards and would meet the project objectives to provide faster and safer access for emergency vehicles and a safe, year-round, all-weather route between Valle Vista and Anza. This would reduce mileage, time, and user costs for Anza area residents, and the Ramona, Cahuilla, and Santa Rosa Indian Reservations. No significant adverse traffic/transportation effects would occur as a result of the implementation of this alternative.

3.3.4.2 Alternative B

Projected traffic volumes and effects would be the same as those described for Alternative A. However, travel time would be approximately 14 minutes with the proposed 55 km/h (35 mph) speed along the 13.2 km (8.2 mi) segment compared to 20 minutes for Alternative A and 17 minutes for Alternative C. No significant traffic/transportation effects would occur as a result of the implementation of this alternative.

3.3.4.3 Alternative C

Projected traffic volumes and effects would be the same as those described for Alternative A. The proposed road improvements would decrease the travel time between Valle Vista and Anza to approximately 17 minutes with the proposed combined 55/40/55 km/h (35/25/35 mph) speeds along the 13.2 km (8.2 mi) segment compared to Alternative A and B travel times.

3.3.4.4 Alternative D

Under the No Action alternative, improvements to Bautista Canyon Road would not occur. As stated in Section 1.4.4, total volumes on Bautista Canyon Road are expected to increase in response to population growth in Riverside County, even if the project is not built. Thus, existing safety and related concerns would remain and could be exacerbated by higher traffic volumes. Implementation of Alternative D would not be consistent with REMAP local circulation policies 8.1 and 8.7.

3.3.5 Mitigation

No mitigation would be required.

3.4 Air Quality

Air quality is defined by ambient air concentrations of specific pollutants determined by U.S. Environmental Protection Agency (USEPA) to be of concern with respect to the health and welfare of the general public. This section addresses baseline air quality conditions for Riverside County and includes a description of air quality terminology, regulatory requirements applicable to the proposed action, current air quality conditions, and potential effects associated with project construction and operation.

3.4.1 Existing Conditions

Climatic Conditions

The project is located in the South Coast Air Basin (SCAB) of California. The basin covers approximately 17,063 square kilometers (km^2) (6,600 square miles [mi^2]), encircling Orange County and the nondesert portions of Los Angeles, Riverside, and San Bernardino counties. Hot summers, mild winters, very little annual rainfall, and generally fair weather characterize the climate. Temperatures in the project area average 18 degrees Celsius (^{o}C) (65 degrees Fahrenheit [^{o}F]) year-round, with hot summer afternoons (35^{o}C+ [95^{o}F+]) and cool winter mornings (2^{o}C [35^{o}F]). Daily highs can reach 43^{o}C (110^{o}F) during July and August with minimum temperatures in the mid-70s. Rainfall varies considerably from November to early April, while the summers are often completely dry. Rainfall averages 317 millimeters (mm) (12.5 in) per year but varies from year to year (SCAQMD 1997).

Baseline Air Quality

This section describes existing conditions potentially affected by the proposed project and alternatives. In accordance with the South Coast Air Quality Management District (SCAQMD) CEQA guidelines, the description of the affected environment focuses on only those aspects potentially subject to project-related effects. In the case of the proposed action, the affected environment description is limited to the unpaved segment of Bautista Canyon Road.

Bautista Canyon Road is located within Riverside County and, therefore, is included in an ozone (O_3), carbon monoxide (CO), and particulate matter, less than 10 micrometers in diameter (PM_{10}) nonattainment area. There are no baseline air quality monitoring data available for the immediate study area. However, eight air quality monitoring stations are located within the surrounding area. The California Air Resources Board (CARB) and SCAQMD have historically maintained sites in nearby Temecula, Perris Valley, and Lake Elsinore as well as several sites in the city of Riverside. Air quality data most representative of the project area were obtained from the Lake Elsinore monitoring station approximately 45 km (28 mi) west of the project study area and the metropolitan Riverside monitoring station approximately 68 km (42 mi) northwest of the project study area. Table 3.4-1 presents a summary of the air quality data.

According to CARB data, 1-hour and 8-hour O_3 concentrations were measured at levels above the primary National Ambient Air Quality Standards (NAAQS) and state standards multiple times during years measured. PM_{10} concentrations also exceeded state standards multiple times in metropolitan Riverside County between 2000 and 2002. PM_{10} and particulate matter, less than 2.5 micrometers in diameter ($PM_{2.5}$) are sometimes high throughout Riverside County due to agricultural activities, dry soil conditions, and upwind industrial development. Particulate exposure, from both a health and a visibility perspective, is a serious air quality concern in Riverside Country. All other criteria pollutants remained below the primary NAAQS (SCAQMD 1997).

Table 3.4-1
Air Quality Summary for Study Area

Pollutant	2000	2001	2002
Ozone – Lake Elsinore – West Flint Street			
1st High (ppm)	0.128	0.151	0.139
2nd High (ppm)	0.124	0.137	0.131
3rd High (ppm)	0.124	0.137	0.129
4th High (ppm)	0.122	0.135	0.128
Days Exceeding State Standard	45	62	52
Days Exceeding Federal Standard	1	12	6
Carbon Monoxide – Riverside/Rubidoux			
1st High (ppm)	4.15	3.49	3.09
2nd High (ppm)	3.81	3.30	2.97
3rd High (ppm)	3.63	3.24	2.93
4th High (ppm)	3.54	3.17	2.86
Days Exceeding State Standard	0	0	0
Days Exceeding Federal Standard	0	0	0
Nitrogen Dioxide – Lake Elsinore – West Flint Street			
1st High (ppm)	0.078	0.091	0.074
2nd High (ppm)	0.077	0.090	0.067
3rd High (ppm)	0.077	0.084	0.066
4th High (ppm)	0.075	0.079	0.066
Days Exceeding State Standard	0	0	0
Annual Average	0.017	0.018	0.017
Particulate Matter (PM_{10})			
1st High ($\mu g/m^3$)	87	86	100
2nd High ($\mu g/m^3$)	75	79	79
3rd High ($\mu g/m^3$)	75	78	72
4th High ($\mu g/m^3$)	73	77	67
Days Exceeding State Standard	13	16	24
Days Exceeding Federal Standard	0	0	0

Source: California Air Resources Board, 2003

ppm = parts per million
$\mu g/m^3$ = micrograms per cubic meter

Existing Fugitive Dust Emissions

As noted, the existing 13.2 km (8.2 mi) segment of Bautista Canyon Road is unpaved; thus, to establish accurate baseline air quality conditions, fugitive dust volumes generated from use of the unpaved segment of Bautista Canyon Road were estimated. As shown in Table 3.3-1, approximately 138 vehicles use the unpaved segment per day. Fugitive dust emissions associated with vehicle operation on the unpaved segment are based on vehicle miles traveled (VMT) multiplied by an emission factor. The emission factor was calculated using the following equation found in Table 9-9-D in the South Coast Air Quality Management District CEQA Air Quality Handbook (1993):

$2.1 \times [G/12] \times [H/30] \times \{[I/3]^{0.7}\} \times \{[J/4]^{0.5}\} \times \{[365-K]/365\}$ = pounds per vehicle mile traveled (lbs/VMT)

Input variables used in the equation are as follows:

G = surface silt loading (12.0 for mountain road provided in SCAQMD 1993, Table 9-9-D-1)
H = mean vehicle speed (25-miles per hour from SCAQMD 1993, Table 9-9-D-2).
I = mean vehicle weight (in tons) (3 tons or 6,000 pounds from SCAQMD 1993, Table 9-9-D-3)
J = mean number of wheels on vehicles (4.5 wheels assuming automobiles, light duty trucks, 2-axle 6-tires and 18-wheel semitruck) (Note: average number of wheels per vehicle was calculated using traffic count and vehicle mix data recorded on 22 February 2002 at a location north of the CDC Bautista Conservation Camp at Tripp Flats Road)
K = mean number of days per year with at least 0.01 in of precipitation (34 from SCAQMD 1993, Table 9-9-D-4)

Using this equation, an emission factor of 1.66 pounds per vehicle mile traveled (lbs/VMT) was calculated. As noted above, approximately 138 vehicles use the unpaved segment per day. The VMT is calculated by multiplying the number of vehicles by the distance traveled. Thus, the VMT for the unpaved segment is 1,132 (i.e., 138 vehicles x 8.2 mi). The total fugitive dust emissions calculated for existing conditions is 852 kg (1,879 lbs) (i.e., 1,132 VMT x 1.66 lbs). Converted to tons, existing traffic generates approximately 0.85 metric ton (0.94 ton) daily.

3.4.2 Regulatory Setting

Federal Requirements

<u>Relevant Pollutants</u>

Seven criteria air pollutants are regulated by USEPA because they have been identified as having potential health effects. Those associated with motor vehicle operation are carbon monoxide, ozone, nitrogen oxides, and particulate matter. Motor vehicle exhaust is the primary source of carbon monoxide and ozone precursor emissions (i.e., volatile organic compounds and nitrogen oxides). Particulate matter is a constituent of motor vehicle exhaust; however, more significant sources include windblown dust and dust generated from ground-disturbing activities occurring during construction. Pollutants are described as follows:

***Carbon Monoxide (CO) (primary pollutant)*[2].** Carbon monoxide is a colorless, odorless gas resulting from the incomplete combustion of fossil fuels. It is a primary pollutant as carbon monoxide is emitted directly from the tailpipe as one emission constituent. Carbon monoxide levels are a public health concern because CO combines readily with hemoglobin in the blood, thus reducing the amount of oxygen transported in the bloodstream. Typical urban concentrations below national standards are not of concern. High levels, however, can aggravate cardiovascular disease or impair motor functions.

[2] A primary pollutant is released directly from a source.

Ozone (O_3) (secondary pollutant)[3]. Ozone is a pungent, colorless gas and is a common constituent of southern California smog. Close to the earth's surface, ozone is produced photo chemically when volatile organic compounds (i.e., hydrocarbons) and oxides of nitrogen (NO_x) react in the presence of sunlight. Elevated ozone concentrations can result in reduced lung function, particularly during vigorous physical activity. Because the formation of ozone is dependent on sunlight, ozone concentrations peak during the summer and early fall months.

Hydrocarbons and nitrogen oxides come from on- and off-road vehicles and fuel-burning industrial equipment. Hydrocarbons come from motor vehicle exhaust, solvent evaporation, consumer products, and the petroleum industry. Motor vehicles are responsible for 60 percent of the ozone precursor emissions.

Nitrogen Dioxide (NO_2). Nitrogen dioxide (NO_2), a reddish brown gas, and nitric oxide (NO), a colorless odorless gas, are jointly referred to as nitrogen oxides, or NO_x. NO_x is a primary component of smog and also contributes to other pollution problems such as high concentrations of fine particulate matter, poor visibility, and acid deposition. Nitrogen dioxide decreases lung function and may reduce resistance to infection.

Particulate Matter (PM_{10}/$PM_{2.5}$). Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles (larger than 2.5 but smaller than 10 micrometers, or PM_{10}) come from a variety of sources, including windblown dust and grinding operations. Fine particles (less than 2.5 micrometers, or $PM_{2.5}$) often come from gasoline and diesel fuel combustion. Fine particles can also be formed in the atmosphere through chemical reactions.

State and National Ambient Air Quality Standards

The State of California and USEPA have established ambient air quality standards [California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS), respectively] for those criteria pollutants defined above (see Figure 3.4-1). These standards identify the maximum allowable concentrations of criteria pollutants that are considered safe, with an additional adequate margin of safety to protect human health and welfare. Depending on the type of pollutant, these maximum concentrations may not be exceeded at any time or may not be exceeded more than once per year. As shown in Figure 3.4-1, state standards are more stringent than federal standards.

Attainment Status of the Study Area

Riverside County is currently designated by USEPA as an *extreme nonattainment* area for O_3, a *serious nonattainment* area for CO and PM_{10}, a *maintenance* area for NO_x, and an *attainment* area for all other criteria pollutants. Nonattainment areas are defined as those areas in which the NAAQS have been exceeded for one or more criteria pollutants. The terms "extreme" and "serious," as noted above, refer to the degree and number of exceedances. The term "maintenance" means the area had a history of nonattainment, is now consistently meeting the

[3] A secondary pollutant is modified to harmful form after entering the air (often by solar radiation).

POLLUTANT	AVERAGING TIME	CALIFORNIA STANDARDS (1)	NATIONAL STANDARDS (2)	
			Primary	Secondary
Ozone (O_3)	8-Hour	•	0.08 ppm (157 $\mu g/m^3$)	Same as Primary Standards
	1-Hour	0.09 ppm (180 $\mu g/m^3$)	0.12 ppm (235 $\mu g/m^3$)	
Carbon Monoxide (CO)	8-Hour	9.0 ppm (10 mg/m^3)	9.0 ppm (10 mg/m^3)	•
	1-Hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	
Nitrogen Dioxide (NO_2)	Annual Average	•	0.053 (100 mg/m^3)	Same as Primary Standards
	1-Hour	0.25 ppm (470 $\mu g/m^3$)	•	
Sulfur Dioxide (SO_2)	Annual Average	•	0.030 ppm (80 $\mu g/m^3$)	•
	24-Hour	0.04 ppm (105 $\mu g/m^3$)	0.14 ppm (365 $\mu g/m^3$)	•
	3-Hour	•	•	0.50 ppm (1300 $\mu g/m^3$)
	1-Hour	0.25 ppm (655 $\mu g/m^3$)	•	•
Respirable Particulate Matter Less than 10 Microns in Diameter (PM_{10})	Annual Arithmetic Mean	20 $\mu g/m^3$	50 $\mu g/m^3$	Same as Primary Standards
	24-Hour	50 $\mu g/m^3$	150 $\mu g/m^3$	
Respirable Particulate Matter Less than 2.5 Microns in Diameter ($PM_{2.5}$)(3)	Annual Arithmetic Mean	12 $\mu g/m^3$	15 $\mu g/m^3$	Same as Primary Standards
	24-Hour	No Separate Standard	65 $\mu g/m^3$	
Sulfates	24-Hour	25 $\mu g/m^3$	•	•
Lead (Pb)	30-Day Average	1.5 $\mu g/m^3$	•	•
	Calendar Quarter	•	1.5 $\mu g/m^3$	Same as Primary Standards
Hydrogen Sulfide (HS)	1-Hour	0.03 ppm (42 $\mu g/m^3$)	•	•
Vinyl Chloride (chloroethene)	24-Hour	0.010 ppm (26 $\mu g/m^3$)	•	•
Visibility Reducing Particles	8-Hour (10:00 a.m. to 6:00 p.m. PST)	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent. Measurement in accordance with CARB Method V.	•	•

ppm = parts per million

$\mu g/m^3$ = micrograms per cubic meter

mg/m^3 = milligrams per cubic meter

• = no standard established

(1) = CO, SO_2 (1- and 24-hour), NO_2, O_3, PM_{10},$PM_{2.5}$, and visibility reducing particles standards are not to be exceeded. All other California standards are not to be equaled or exceeded.

(2) = Not to be exceeded more than once a year except for annual standards.

SOURCE: California Air Resources Board

California and National Ambient Air Quality Standards

FIGURE 3.4-1

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NAAQS, and has been redesignated by USEPA. Section 176(c) of the Clean Air Act (CAA), as amended, requires federal agencies to ensure that actions undertaken in nonattainment or maintenance areas are consistent with the CAA and with federally enforceable air quality management plans. A transportation conformity rule requires that transportation plans, programs, and projects conform to state air quality implementation plans (SIPs) and establishes the criteria and procedures for determining conformity. The USEPA general conformity rule applies to federal actions occurring in nonattainment or maintenance areas when the total direct and indirect emissions of nonattainment pollutants (or their precursors) exceed specified thresholds. The emission thresholds that trigger requirements for a conformity analysis are called *de minimis* levels. *De minimis* levels (in tons per year) vary from pollutant to pollutant and are also subject to the severity of the nonattainment status.

The USEPA conformity rule establishes a process intended to demonstrate that a proposed federal action would (1) not cause or contribute to new violations of federal air quality standards, (2) not increase the frequency or severity of existing violations of federal air quality standards, and (3) not delay the timely attainment of federal air quality standards. Conformity is determined based on the most recent emissions estimates, and these estimates are determined by SCAG using the most recent population, employment, travel, and congestion data. Compliance is presumed if the net increase in direct and indirect emissions from a federal action would be less than the relevant *de minimis* levels; otherwise, a formal conformity determination process must be implemented.

State Requirements

The CAA requires each state to develop, adopt, and implement a SIP to achieve, maintain, and enforce federal air quality standards. A SIP is developed on a pollutant-by-pollutant basis whenever one or more air quality standard is violated. Local governments and air pollution control districts have had the primary responsibility for developing and adopting the regional elements of the California SIP. In Riverside County, the SCAQMD is responsible for governing air quality and reports to the CARB. Amendments to the federal CAA in 1990 set new deadlines for attainment based on the severity of the pollution problem and began a comprehensive planning process for NAAQS. The new national 8-hour O_3 standard and the$PM_{2.5}$ standards, declared in 1997, would result in additional statewide air quality planning efforts (CARB 2002).

Under the CAA, the SCAB was designated as an extreme O_3 nonattainment area and was required to submit a SIP that showed how the area would meet the federal O_3 standard by 2010. In 1994, the SCAQMD and CARB adopted this attainment plan, which was forwarded to USEPA as a SIP revision. In 1996, USEPA approved the 1994 SIP. In 1997, the SCAQMD adopted an updated Air Quality Management Plan (AQMP), which contained a revised O_3 attainment demonstration based on improved modeling, an updated emissions inventory, and a revised local control strategy. The AQMP was submitted to USEPA by the SCAQMD as a SIP revision on 4 February 2000 and was subsequently approved by USEPA in 2000. The 1997 PM_{10} SIP was approved by the CARB and submitted to USEPA in February 1997. In order to expedite USEPA's action on the 1997 PM_{10} SIP, the SCAQMD updated the AQMP in 2002 with respect to the adoption and implementation schedule of various PM_{10} related measures (White 2003). USEPA approved the SCAB PM_{10} SIP on 18 April 2003 (effective 19 May 2003) (USEPA 2004).

Typically, projects listed in the SCAG's 2001 RTIP are consistent with the SIP and SCAQMD AQMP. Bautista Canyon Road is included in the RTIP and would be consistent with regional air quality goals and policies. This air quality analysis was conducted using CEQA Guidelines thresholds and methodologies that are consistent with the SCAQMD CEQA Air Quality Handbook (amended 1993).

Local

<u>SBNF Land and Resource Management Plan Air Quality Goal</u>

The SBNF Land and Resource Management Plan establishes a goal to emphasize protection of air quality in a manner consistent with state and federal air quality objectives. The following SBNF plan goal would apply to the proposed action:

<u>Air Quality</u>

- Emphasize protection of air quality in a manner consistent with state and federal air quality objectives.

<u>SCAG 2001 Regional Transportation Plan Goals and Policies</u>

The Regional Transportation Plan developed goals and policies to emphasize subregional and market-based approaches to improve mobility and air quality. The following General Transportation Plan policies would apply to the proposed action:

<u>Goals</u>**:**

1. *Improve transportation mobility for all people and enhance the movement of goods within the subregions and the Region.*
2. *Ensure that transportation investments are cost-effective, protect the environment (including improving air quality), promote energy efficiency and enhance the quality of life.*
3. *Serve the public's transportation needs in safe, reliable and economical ways that also meet the individual needs of those who depend on public transit, such as the elderly, handicapped and disadvantaged.*

<u>Policies</u>**:**

Policy #2: Transportation investments shall mitigate environmental effects to an acceptable level.

Policy #16: Maintaining and operating the existing transportation system will be a priority over expanding capacity.

3.4.3 Thresholds of Significance

A project can affect regional air quality both directly and indirectly. Vehicular emissions and dust from construction and motor vehicle use is an example of a direct effect. The formation of smog as a result of the interaction between reactive organic gases from vehicle emissions and sunlight is an example of an indirect effect. Table 3.4-2 summarizes the SCAQMD significance thresholds. If project construction or operation has the potential to exceed any of the adopted thresholds, project effects would be considered significant and require mitigation.

Table 3.4-2
Emission Thresholds of Significance

Pollutant	Construction		Operations
	Kilograms/day (Pounds/day)	Metric tons/quarter (Tons/quarter)	Kilograms/day (Pounds/day)
Carbon monoxide (CO)	250 kg (550 lb)	22.5 metric tons (24.75 tons)	250 kg (550 lb)
Sulfur oxides (SO_x)	68 kg (150 lb)	6.1 metric tons (6.75 tons)	68 kg (150 lb)
Nitrogen oxides (NO_x)	45 kg (100 lb)	2.3 metric tons (2.5 tons)	25 kg (55 lb)
Particulate matter (PM_{10})	68 kg (150 lb)	6.1 metric tons (6.75 tons)	68 kg (150 lb)
Reactive organic gases (ROG)	34 kg (75 lb)	2.3 metric tons (2.5 tons)	25 kg (55 lb)

Source: South Coast Air Quality Management District, CEQA Air Quality Handbook, 1993

Additional indicators can be used as screening criteria identifying the need for further analysis with respect to air quality. These indicators are defined as follows:

The proposed action would result in a significant impact to the environment if it would:

- violate any air quality standard or contribute substantially to an existing or projected air quality violation,
- result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard,
- expose sensitive receptors to substantial pollutant concentrations, or
- create objectionable odors affecting a substantial number of people.

3.4.4 Environmental Consequences

3.4.4.1 Alternative A

Construction

Construction-related air quality effects are based on both worker trips and emissions from the operation of heavy equipment. For the proposed action, a workforce of approximately 20 to 25 personnel would be employed on the project during construction, which is expected to last approximately 16 months. The average number of worker trips to and from the construction site is estimated to be approximately 50 per day. During initial construction phases, as many as 30 round truck trips are estimated for the delivery of construction materials to and from the construction site each day. It is anticipated that all construction materials would be delivered from the north via Fairview Avenue and SH 74.

Construction activities would also require the use of heavy equipment and support vehicles. Emissions have been estimated for construction activities using data and procedures described by the USEPA (SCAQMD 1993) and account for fugitive dust and emissions from construction equipment and vehicles. Estimated emissions are shown in Table 3.4-3. The equipment mix and associated emission factors are shown in Table 3.4-4. Emissions estimates are based on a conservative scenario and are intended to represent worst-case conditions, meaning all equipment operating at the same time, at 100 percent load, for the entire 8-hour construction day. Emissions associated with worker trips are shown in Table 3.4-5.

Table 3.4-3
Estimated Construction and Vehicular Emissions*
(kilograms [pounds] per day)

	ROG	NO_x	CO	SO_X	PM_{10}
Construction emissions	34 kg (76 lb)	643 kg (1418 lb)	267 kg (589 lb)	72 kg (159 lb)	45 kg (100 lb)
Vehicular emissions	0.60 kg (1.32 lb)	1.95 kg (4.30 lb)	9.30 kg (20.51 lb)	NA	0.02 kg (0.06 lb)
Total	**34.6 kg (77.3 lb)**	**645.0 kg (1422.3 lb)**	**276.3 kg (609.5 lb)**	**72 kg (159 lb)**	**45.0 kg (100.1 lb)**
De minimis threshold**	*34 kg (75 lb)*	*45 kg (100 lb)*	*250 kg (550 lb)*	*68 kg (150 lb)*	*68 kg (150 lb)*
Exceeds *de minimis* threshold?	Yes	Yes	Yes	Yes	No

CO – carbon monoxide
NO_x = nitrogen oxides
PM_{10} = particulate matter
ROG = reactive organic gas
SO_x = sulfur oxides;
*Estimated construction equipment and work vehicle exhaust emissions
**SCAQMD Air Pollution Thresholds for Construction

Table 3.4-4
Estimated Construction Equipment Pollutant Emissions

Equipment	No. of Units	Hours/Day[3]	CO EF[1, 2] (lb/hr)	CO E (lb/day)	ROG EF (lb/hr)	ROG E (lb/day)	NO_x EF (lb/hr)	NO_x E (lb/day)	SO_x EF (lb/hr)	SO_x E (lb/day)	PM_{10} EF (lb/hr)	PM_{10} E (lb/day)
Graders	3	8	0.151	3.624	0.039	0.936	0.054	1.296	0.086	2.064	0.061	1.464
Asphalt pavers	2	8	0.300	4.800	0.065	1.040	0.870	13.920	0.067	1.072	0.050	0.800
Generator sets-diesel (<50Hp)	4	8	0.180	5.760	0.053	1.696	0.441	14.112	0.076	2.432	0.031	0.992
Dump trucks	4	8	1.800	57.600	0.190	6.080	4.170	133.440	0.450	14.400	0.260	8.320
Backhoes	4	8	0.201	6.432	0.095	3.040	0.830	26.560	0.076	2.432	0.059	1.888
Rollers	4	8	0.300	9.600	0.065	2.080	0.870	27.840	0.067	2.144	0.050	1.600
Trucks (off-highway)	30	8	1.800	432.000	0.190	45.600	4.170	1000.800	0.450	108.000	0.260	62.400
Cranes	2	8	0.151	2.416	0.039	0.624	0.054	0.864	0.086	1.376	0.061	0.976
Scrapers	6	8	0.201	3.216	0.095	1.520	0.830	13.280	0.076	1.216	0.059	0.944
Front-end loaders	2	8	0.151	3.624	0.039	0.936	0.054	1.296	0.086	2.064	0.061	1.464
Dozers	3	8	1.250	60.000	0.270	12.960	3.840	184.320	0.460	22.080	0.410	19.680
Total[4, 5]	**64**			**589 lb (267 kg)**		**76 lb (34 kg)**		**1418 lb (643 kg)**		**159 lb (72 kg)**		**100 lb (45 kg)**

CO – carbon monoxide
E – emissions
EF – emission factor
hr – hour
kg – kilogram
lb – pound
NO_x – nitrogen oxides
PM_{10} – particulate matter
ROG – reactive organic gas
SO_x – sulfur oxides

Notes:
1. Construction equipment emission factors derived from Table 9-8-A of the *CEQA Air Quality Handbook, SCAQMD, revised November 1993.*
2. Construction equipment emissions estimated for diesel fuel.
3. Construction emission estimates assume equipment operation at 100 percent load for an entire 8-hour construction day.
4. Total construction equipment emissions are considered unmitigated.
5. For purposes of calculating total air quality emissions, a worst-case scenario was assumed. Total construction equipment units will not be on-site at the same time. Total construction equipment will vary from day-to-day.

Table 3.4-5
Estimated Vehicular Work Trip Emissions
(Pounds Per Day)

		CO		ROG		NOx		SO_x		PM_{10}Error! Bookmark not defined.	
Work Trips One Way	**Km (Miles) Round Trip[3]**	**Grams (lb)/ Mile[1, 2]**	**Kilograms (lb)/Day[4]**	**Grams (lb)/Mile**	**Kilograms (lb)/Day**	**Grams (lb)/Mile**	**Kilograms (lb)/Day**	**Grams (lb)/Mile**	**Kilograms (lb)/Day**	**Grams (lb)/Mile**	**Kilograms (lb)/Day**
25	161 km (100 miles)	3.72 g (0.008 lb)	9.302 kg (20.507 lb)	0.240 g (0.001 lb)	0.600 kg (1.323 lb)	0.780 g (0.002 lb)	1.950 kg (4.300 lb)	NA	NA	0.010 g (0.00002 lb)	0.025 kg (0.055 lb)

CO – Carbon Monoxide
g – gram
kg – kilogram
km – kilometer
lb – pound
NA – not applicable
NO_x – Nitrogen Oxides
PM_{10} – Particulate Matter
ROG – Reactive Organic Gas
SO_x – Sulfur Oxides

Notes:

1. Vehicular work trip emission factors derived from Table 9-5-J-7 of the *CEQA Air Quality Handbook, SCAQMD, revised November 1993*.
2. Average speed estimated at 55 mph.
3. Work trip one way estimated at 50 miles.
4. Total construction equipment emissions are considered unmitigated.

As shown in Table 3.4-3, total pollutant emissions from all construction sources under the proposed action in a worst-case scenario (see Tables 3.4-4 and 3.4-5) are projected to exceed *de minimis* thresholds for each pollutant, with the exception of PM_{10}. It is very unlikely, however, that all equipment would be operating at one time as indicated. The worst-case calculations are used to derive conservative emissions estimates. Emissions would be temporary and would occur only during the project construction cycle.

Earthwork Emissions

The majority of fugitive dust emitted during construction would result from grading and other earth-moving activities. To minimize fugitive dust emissions associated with ground disturbing activities, construction contractors would be required to comply with SCAQMD's Rule 403 for fugitive dust. The purpose of Rule 403 is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (human-made) fugitive dust sources by requiring measures be taken to prevent, reduce, or mitigate fugitive dust emissions. Rule 403 stipulates best available control measures or Best Management Practices (BMPs), which are required to be implemented within the boundaries of the SCAB. PM_{10} emissions would be moderated through use of BMPs that include watering exposed soils, soil stockpiling, and soil stabilization. This would further reduce the total quantity of fugitive dust emitted during construction.

Alternative A would result in an estimated total of 28.4 ha [70.1 ac] of grading. Total grading is greater than for Alternative B, but less than for Alternative C. The grading threshold of potential significance for air quality is 71.6 ha (177 ac) per day (SCAQMD 1993, Table 6-3). This threshold was used to determine whether the proposed project's grading would exceed this threshold. Based on an estimated 3-month grading schedule, a total average of 0.32 ha (0.8 ac) per day of grading would occur. Under the proposed action, the daily amount of grading would be below the *de minimis* threshold. Therefore, entrained dust associated with ground disturbing activities would not exceed the significance criteria noted above.

Operations – Opening Year and Design Year

Traffic projections along Bautista Canyon Road for 2025 range from 1,150 to 1,790 ADT (depending on the segment). Because the proposed action is an improvement to an existing unpaved roadway facility, it would not directly generate the additional future traffic volumes that a new road or regional commercial shopping center would. Projected traffic volumes, which have been factored into regional growth and transportation planning, would be diverted onto Bautista Canyon Road as discussed above. The proposed action would result in a positive benefit to air quality by providing faster travel time and an improved roadway linkage between Valle Vista and Anza. The proposed action also would divert some traffic from SH 371 and SH 74 (as discussed in Section 3.3.1.4) that could reduce traffic on these highways, thereby improving regional air quality.

As noted, the current use of the existing unpaved 13.2 km (8.2 mi) segment of Bautista Canyon Road results in a total of 852 kg (1,879 lbs)/0.85 metric tons (0.94 tons) per day of PM_{10} (fugitive dust) emissions. Operation of the proposed project would essentially eliminate fugitive dust emissions and, therefore, would create a long-term benefit to air quality.

Implementation of the AQMP is based on a series of control measures that vary by source type, such as stationary or mobile pollutant sources. Control methods for fugitive dust include road dust suppression, watering of disturbed surface areas, paving areas adjacent to roadways, chemical stabilization of unpaved areas, track-out prevention, and revegetation of disturbed surface areas (SCAQMD 1997). This project is in an area covered by an approved SIP and in the 1997 AQMP revision. The SCAG RTIP only includes projects that are fully funded. The project has been presented to the SCAG and was approved in 2002 for placement into the RTIP (RTIP ID: SCAG013). Therefore, the proposed project would conform to the SIP, pursuant to 23 CFR § 770.

<u>SBNF Land and Resource Management Plan (LRMP)</u>

Alternative A is consistent with the air quality goal of the SBNF Land and Resource Management Plan. Paving the existing 13.2 km (8.2 mi) dirt segment of Bautista Canyon Road would reduce fugitive dust emissions to negligible levels.

<u>SCAG 2001 Regional Transportation Plan (RTP)</u>

Alternative A is consistent with the SCAG 2001 RTP regional goals and policies which in general terms, *improve transportation mobility, ensure that transportation investments are cost-effective, protect the environment (including improving air quality), promote energy efficiency and enhance the quality of life; and serve the public's transportation needs.* Alternative A would improve an existing dirt segment of Bautista Canyon Road to current rural collector design standards and complete the system connection between SH 74 to the north and SH 371 to the south. Alternative A also improves access efficiency and safety for all road uses, including emergency vehicles. Maintenance efficiency of the roadway is also achieved with the implementation of the proposed alternative.

3.4.4.2 Alternative B

Projected traffic volumes, temporary construction personnel and vehicle use, and grading (29.2 ha [72.1 ac]) are nearly the same as described in Alternative A. The total area disturbed by grading is greater than for both Alternatives A and C. Air quality effects would be the same as described in Alternative A because construction activities and traffic projections would be the same regardless of the proposed alignment. The project has been presented to the SCAG and was approved in 2002 for placement into the RTIP (RTIP ID: SCAG013). Therefore, the proposed project would conform to the SIP, pursuant to 23 CFR § 770.

Alternative B is consistent with the SBNF LRMP and the SCAG RTP for the same reasons listed above for Alternative A.

3.4.4.3 Alternative C

Projected traffic volumes, temporary construction personnel and vehicle use, and grading are nearly the same as described in Alternative A. Alternative C would result in a total of 27.6 ha (68.3 ac) of grading, which is less than that required for Alternatives A and B. Air quality effects would be the same as described in Alternative A because construction activities and traffic projections would be the same regardless of the proposed alignment. The project has been presented to the SCAG and was approved in 2002 for placement into the RTIP (RTIP ID: SCAG013). Therefore, the proposed project would conform to the SIP, pursuant to 23 CFR § 770.

Alternative C is consistent with the SBNF LRMP and the SCAG RTP for the same reasons listed above for Alternative A.

3.4.4.4 Alternative D

Under the No Action alternative, improvements to Bautista Canyon Road would not occur. Thus, reductions in fugitive dust emissions described above would not occur and could worsen as additional vehicles use Bautista Canyon Road. Implementation of this alternative would not be consistent with SBNF and SCAG regional air quality goals. Fugitive dust from the unpaved roadway segment would continue in the long term. Existing emissions exceed the 68 kg (150 pounds)/day threshold defined in Table 3.4-3. Therefore, the No Action alternative would result in an adverse long-term air quality impact.

3.4.5 Mitigation

As noted, short-term increases in air emissions would occur during the construction of Alternative A. To reduce vehicle exhaust emissions during construction:

- The construction contractor shall maintain construction equipment engines by keeping them tuned in accordance with manufacturers' specifications.
- The construction contractor shall use only California diesel fuel in heavy-duty vehicles.

To comply with SCAQMD's Rule 403 requirements for fugitive dust and to minimize fugitive dust generated during construction, the most appropriate measures can be implemented from the following list:

1. During high wind conditions (over 40 km/h[25 mph]), the following control measures should be used[4]:

   Earth-Moving

   a. Cease all active operations; or
   b. Apply water to soil no more than 15 minutes prior to moving such soil, if feasible.

[4] Requirements under Rule 403, as amended 11 December 1998 by the SCAQMD.

Disturbed Surface Areas

a. On the last day of active operations prior to a weekend, holiday, or any other period when active operations would not occur for 4 consecutive days or more: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of 6 months; or
b. Apply chemical stabilizers[5] prior to wind event if feasible; or
c. Apply water to all unstabilized disturbed areas three times per day. If there is any evidence of wind-driven fugitive dust, watering frequency is increased to a minimum of four times per day.

Unpaved Roads

a. Apply chemical stabilizers prior to wind event; or
b. Apply water twice per hour during active operation, if feasible.
c. Stop all vehicular traffic.

Open Storage Piles

a. Apply water twice per day; or
b. Install temporary coverings; or
c. Establish a hydroseeded vegetative cover.

Paved Road Track-Out[6]

a. Cover all haul vehicles; or
b. Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.

2. During normal conditions, the following control measures would be used:

Earth-Moving – construction of cut and fill areas and mining operations

Conduct watering as necessary to prevent visible emissions from extending more than 100 ft beyond the active cut or fill area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.

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[5] Chemical stabilizers mean any non-toxic chemical dust suppressant which must not be used if prohibited for use by the Regional Water Quality Control Board, the California Air Resources Board, the USEPA, or any applicable law, rule or regulation; and should meet any specifications, criteria, or tests required by any federal, state, or local water agency. Unless otherwise indicated, the use of a non-toxic chemical stabilizer shall be of sufficient concentration and application frequency to maintain a stabilized surface (SCAQMD, Rule 403, Definitions).

[6] Track-out means the depositing or spilling of bulk material, such as sand, gravel, soil, or aggregate material less than two inches in length or diameter, and other organic or inorganic particulate matter, onto public paved roadways as a result of their operations (SCAQMD, Rule 403, Definitions).

Disturbed Surface Areas (except completed grading areas)

Apply dust suppression[7] in sufficient quantity and frequency to maintain a stabilized surface. Any areas that cannot be stabilized, as evidenced by wind-driven fugitive dust must have an application of water at least twice per day to at least 80 percent of the unstabilized area.

Disturbed Surface Areas[8] – completed grading areas

a. Apply chemical stabilizers within 5 working days of grading completion; or
b. Take actions specified for inactive disturbed surface areas below.

Inactive Disturbed Surface Areas[9]

a. Apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind-driven fugitive dust, excluding any areas that are inaccessible to watering vehicles due to excessive slope or other safety conditions; or
b. Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; or
c. Establish a vegetative ground cover within 21 days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; or
d. Utilize any combination of control actions above such that, in total, these actions apply to all inactive disturbed surface areas.

Unpaved Roads

a. Water all roads used for any vehicular traffic (including construction vehicles) at least once every 2 hours of active operations; or
b. Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 mi per hour; or
c. Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.

Open Storage Piles

a. Apply chemical stabilizers; or

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[7] Dust suppressants are water, hygroscopic materials, or non-toxic chemical stabilizers used as a treatment material to reduce fugitive dust emissions (SCAQMD, Rule 403, Definitions).
[8] Disturbed surface area means a portion of the earth's surface, which as been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed natural soil condition, thereby increasing the potential for emission of fugitive dust. This definition excludes those areas which have: (a) been restored to a natural state, such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby natural conditions, (b) been paved or otherwise covered by a permanent structure; or (c) sustained a vegetative ground cover over at least 95 percent of an area for a period of at least 6 months (SCAQMD, Rule 403, Definitions).
[9] Inactive disturbed surface area means any disturbed surface area upon which active operations have not occurred or are not expected to occur for a period of ten consecutive days (SCAQMD, Rule 403, Definitions).

b. Apply water to at least 80 percent of the surface area of all open storage piles on a daily basis when there is evidence of wind-driven fugitive dust; or
c. Install temporary coverings; or
d. Establish a vegetative ground cover within 21 days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; or
e. Install a three-sided enclosure with walls with no more than 50 percent porosity that extend, at a minimum, to the top of the pile.

3. Gravel pads shall be installed at all access points to prevent tracking of mud onto roadways and public streets.

4. All waste materials transported off-site shall be covered or sufficiently wetted to limit dust emissions.

No other indirect, cumulative, or unavoidable air quality impact would occur as a result of the implementation of Alternative A because the proposed action is an improvement to an existing roadway.

3.5 Noise

Noise is defined as any unwanted sound. Unwanted sound can interfere with communications, damage hearing if it is intense enough, and be annoying. Human response to noise varies depending upon the type and characteristic of the noise source, the distance between the noise source and the receptor, the sensitivity of the receptor, and the time of day. Sound travels through the air as waves of minute air pressure fluctuations caused by some type of vibration. In general, sound waves travel away from the noise source as an expanding spherical surface. As a result, the energy contained in a sound wave is spread over an increasing area as it travels away from the source. This results in a decrease in loudness at greater distances from the noise source.

For traffic-related noise, which is essentially continuous and moving, noise levels decrease by about 3 decibels (dB) for every doubling of distance from the source. Topographic features and structural barriers that absorb, reflect, or scatter sound waves can result in increased or decreased noise levels. Additionally, soft ground surfaces (i.e., dirt or grass), vegetation, and atmospheric conditions (e.g., wind speed and direction, humidity level, and temperature) can affect the degree to which sound is attenuated over distance.

The human ear does not respond equally to all sound frequencies. Therefore, when considering the effects of noise on people, it is necessary to consider the frequency response of the human ear. The frequency weighting most often used to evaluate environmental noise is A-weighting, which reduces the measured sound pressure level for low-frequency sounds while slightly increasing the measured pressure level for some high-frequency sounds. Measurements using this system are reported in "A-weighted decibels", or dBA. All sound levels in this section are provided in dBA. Table 3.5-1 lists noise sources as well as their corresponding sound levels.

Table 3.5-1
Sound Levels (dB) and Relative Loudness of Typical Noise

dB(A)	Subjective Loudness (Relative to 70 dB)	Overall Level	Community Noise Levels (Outdoors)	Sound Level dB(A)
120	32 times as loud	Deafening	Military jet aircraft take-off from aircraft carrier with afterburner at 15 m (50 ft)	130
110	16 times as loud		Turbo-fan aircraft at takeoff power at 61 m (200 ft) DC-10 at 1,853 m (6,080 ft) on approach	118 110
100	8 times as loud	Very Loud		100
90	4 times as loud		Boeing 737 or DC-9 aircraft at 1 nautical mile (1,853 m [6,080 ft]) before landing Power mower Motorcycle at 7.6 m (25 ft)	97 96 90
80	2 times as loud	Loud	Car wash at 6.1 m (20 ft) Propeller plane flyover at 305 m (1,000 ft) Diesel truck 64 km/h (40 mph) at 15.2 m (50 ft) Diesel train 72 km/h (45 mph) at 30.1 m (100 ft)	89 88 84 83
70			High urban ambient sound Passenger car 105 km/h (65 mph) at 7.6 m (25 ft) Freeway at 15.2 m (50 ft) from pavement edge 10 a.m.	80 77 76
60	½ as loud	Moderate	Air conditioning unit at 30.5 m (100 ft)	60
50	¼ as loud		Large transformers at 30.5 m (100 ft)	50
40		Faint	Bird calls	44
20			Rustle of leaves	20
10		Very Faint	Just audible	
0			Threshold of hearing	

Sources: Federal Interagency Committee on Noise, August 1992 and County of Riverside General Plan – Hearing Draft - April 5, 2002, Noise Element.

db – decibel
dBA – A-weighted sound level
km/h – kilometers per hour
m – meter
mph – miles per hour
ft – foot/feet

3.5.1 Existing Conditions

The study area is predominantly rural with limited urban development located at the northern terminus. This includes several single-family residences and the Valle Vista Library (43975 East Florida Avenue), Valle Vista Community Center (43935 East Acacia Avenue) and Valle Vista Elementary School (43900 Mayberry Avenue). All receptors near the northern terminus are located adjacent to Fairview Avenue. From the Valle Vista area south, development is sparse and located several hundred feet from the roadway. The CDC Bautista Conservation Camp is located approximately 152 m (500 ft) to the west of Bautista Canyon Road, approximately 16.6 km (10.3 mi) from the northern terminus. Near the southern terminus, one single-family residence is located just north of the Bautista Canyon Road/SH 371 intersection and is set back approximately 60 m (200 ft) from the roadway.

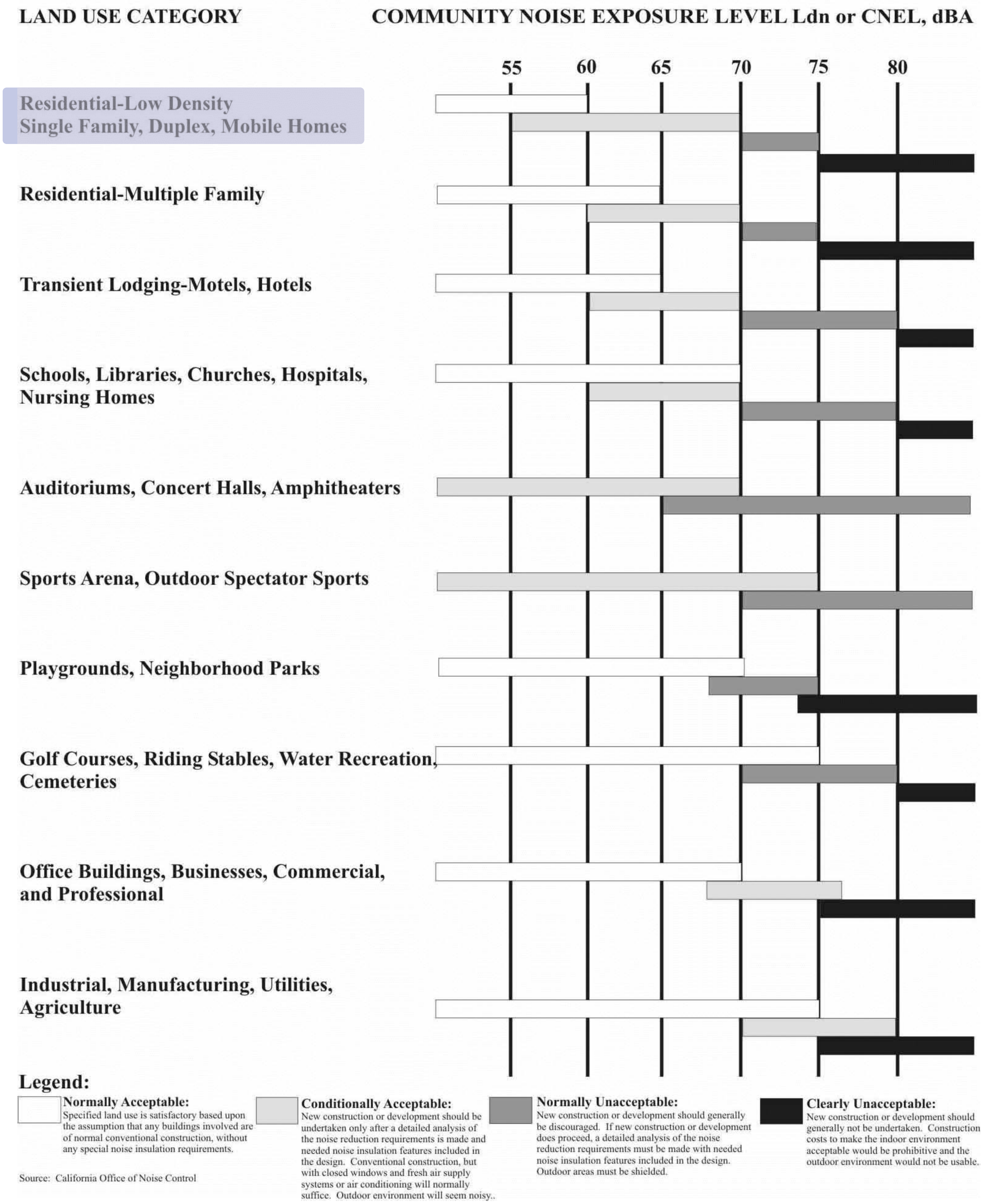
The primary existing noise source at receptors in the study area is traffic. Other audible sounds include those typical of residential areas (e.g., barking dogs, birds, and occasional aircraft over flights). Based on current traffic volumes, existing noise levels were estimated at three locations along the roadway corresponding to traffic count sites using data as shown in Figure 3.5-1. Using the FHWA method identified in publication RD-77-108, noise levels were estimated based on traffic volumes, speeds, and mix of vehicles (cars, medium and heavy trucks). For the purpose of this analysis, 10 percent of the ADT volumes on Bautista Canyon Road were assumed to occur within the peak hour of travel (see Table 3.5-2). Speeds were assumed to be 55 km/h (35 mph) for cars and light trucks and 48 km/h (30 mph) for medium (i.e., two-axle, six wheels) and heavy trucks (i.e., semitrucks). To conservatively estimate noise levels, cars and light trucks are assumed to constitute 93 percent of all vehicles, medium trucks 4 percent, and heavy trucks 3 percent. Table 3.5-2 shows peak hour noise levels at 50 and 200 feet from the Bautista Canyon Road centerline. Noise levels are shown as an average sound level (L_{eq} [h]) over a period of 1 hour.

Table 3.5-2
Existing Peak Hour Traffic Volumes and Noise Levels

Location	Existing Traffic	50 Feet	200 Feet
East of Fairview Avenue (north)	35	52 dBA	42 dBA
CDC Bautista Conservation Camp (central)	14	46 dBA	36 dBA
South of Tripp Flats Road (south)	6	40 dBA	31 dBA

DBA – A-weighted sound level

As shown on Table 3.5-2, noise levels at 50 feet from the roadway range from a high of 52 dBA at the northern terminus to a low of 40 dBA at the southern terminus. These noise levels are considered moderate to faint. At 200 feet from the roadway, noise levels range from 42 dBA to 301 dBA. Assuming typical background noise conditions occur within the study area (i.e., wind blowing, rustling leaves, dogs barking), traffic noise is likely masked and nearly inaudible at distances of 200 feet or more from the roadway.



SOURCE: County of Riverside

Land Use Compatibility for Community Noise Exposure

FIGURE

3.5-1

GRAPHIX/Environmental/Bautista Canyon Road/Land Use Compatibility.FH8

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3.5.2 Regulatory Setting

The following policies address the issues of roadway traffic noise and suggest methods to reduce the noise impact of roads on adjacent and nearby land uses:

County of Riverside General Plan

N 8.1 Enforce all noise sections of the State Motor Vehicle Code.

N 8.2 Ensure the inclusion of noise mitigation measures in the design of new roadway projects in the County.

N 8.6 Require that all future exterior noise forecasts use Level of Service C, and be based on designed road capacity or 20-year projection of development (whichever is less) for future noise forecasts.

County of Riverside General Plan/REMAP Noise Policy

REMAP 6.1 Protect the environment in REMAP through adherence to the Noise Sensitive Land Uses section of the General Plan Noise Element.

3.5.3 Thresholds of Significance

The proposed action would result in a significant impact to the environment if it would:

- expose people to, or generate, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- expose people to, or generate, excessive ground borne vibration or ground borne noise levels;
- result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project; or
- result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

<u>Federal Highway Administration Noise Abatement Criteria</u>

The proposed project is considered a Type 1 project as defined in 23 CFR § 772. As noted, noise sensitive properties adjacent to the Bautista Canyon Road corridor are located near the northern and southern termini and include single-family residences, an elementary school, and the CDC Bautista Conservation Camp. The single-family residences and elementary school are approximately 15.3 km (9.5 mi) from the project limits. These are considered Activity Category B properties and are subject to the federal noise abatement criteria listed in Table 3.5-3.

Table 3.5-3
FHWA Noise Abatement Criteria

Activity Category	L_{eq} Noise Levels	Description of Activity Category
A	57 dBA exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose
B	67 dBA exterior	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals
C	72 dBA exterior	Developed lands, properties, or activities not included in above categories
D	---	Undeveloped lands, dispersed recreation activities
E	52 dBA interior	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums

Source: Federal Highway Administration (FHWA), 1982.

L_{eq} – equivalent sound level
dBA – A-weighted sound level

As stated in23 CFR § 772, noise abatement must be considered when the predicted traffic noise level approaches or exceeds noise abatement criteria shown in Table 3.5-3 or when the predicted traffic noise level substantially exceeds the existing noise level. For the purpose of this analysis, an increase of 12 dBA L_{eq} (h) is considered substantial. Only Activity Category B land uses are discussed in this document.

Where noise abatement criteria are exceeded, it is necessary to determine whether mitigation is both feasible in engineering and safety considerations, and reasonable in function. Factors that determine reasonableness include a noise reduction of 5 dBA or greater, an acceptable barrier cost per benefited residence, local approval of noise walls, the significance of the noise impact, date of development, and types of existing land use. Determining whether mitigation is reasonable implies that common sense and good judgment has been applied in arriving at a decision.

The County of Riverside uses noise acceptability levels for different land uses as shown in Figure 3.5-1. Land use activities that emit noise above a certain level can be considered incompatible with neighboring activities. Thus, noise attenuation devices must be used to mitigate the noise to acceptable levels both indoors and outdoors. For the purpose of this analysis, FHWA noise abatement criteria will be used to determine impact levels where mitigation measures should be considered.

3.5.4 Environmental Consequences

3.5.4.1 Alternative A

The model assumptions used to determine existing noise levels were also used to estimate project-related noise levels. Table 3.5-4 shows traffic volumes used to estimate noise levels after project completion. Noise impact calculations were performed for distances at 50 and 200 feet to simulate receptor distances from the roadway. It is assumed that if noise levels do not exceed noise abatement criteria at these distances, then receptors located further from the roadway would not be exposed to noise levels that exceed the criteria.

Table 3.5-4
Peak Hour Traffic Volumes

Location	Existing	Opening Year	Year 2025
East of Fairview Avenue (north)	35	60	179
CDC Bautista Conservation Camp (central)	14	40	132
South of Tripp Flats Road (south)	6	30	115

For comparative purposes, Table 3.5-5 shows the existing and projected noise levels associated with the proposed project. As noted above, this method estimates noise levels associated with vehicle volumes, speeds, and distances between the source and receptor.

Table 3.5-5
Predicted Noise Levels

Location	Existing (dBA)		Opening Year		Year 2025	
	50 feet	200 feet	50 feet	200 feet	50 feet	200 feet
East of Fairview Avenue (north)	52	42	54	45	59	49
CDC Bautista Conservation Camp (central)	46	36	52	43	58	48
South of Tripp Flats Road (south)	40	31	51	42	57	47

As shown in Table 3.5-5, noise levels near the project's northern terminus are projected to increase from 52 dBA under existing conditions to a maximum of 59 dBA during year 2025 (design year) conditions. The project would not cause noise levels to approach or exceed the 67-dBA criteria at the project's northern terminus, nor would the project cause a 12 dBA or greater increase at 50 or 200 feet under either future scenario.

Modeling shows the project would not cause an exceedance of the 67-dBA criteria 200 feet from the roadway in the vicinity of the CDC Bautista Conservation Camp. As shown, noise levels could increase from 36 dBA under existing conditions to 43 dBA during opening year conditions. Using a standard attenuation rate of 3 dBA per doubling of distance from the source, noise levels would be approximately 40 dBA 400 feet from the roadway and would further attenuate over the remaining 100 feet to the camp site. As described above, noise levels less than 40 dBA would likely be masked by other sources such as wind, rustling leaves, and other activities on-site. Year 2025 traffic volumes may cause noise levels to reach 48 dBA under year 2025 conditions 200 feet from the roadway. At 400 feet, noise levels would attenuate to 45 dBA. Under 2025 conditions, noise levels would not approach or exceed the 67-dBA criteria or increase by 12 or more dBA.

As shown in Table 3.5-5, the 67-dBA threshold would not be exceeded at receptors near the southern terminus; however, calculations show project-induced traffic noise could cause a 12 dBA or greater increase over existing noise levels. Noise levels are projected to increase from 31 dBA to 42 dBA during opening year and an additional 5 dBA (47 dBA) by the year 2025. Under year 2025 conditions, it is predicted that 109 additional vehicles would pass through the southern portion of the study area during the peak hour of travel than under current conditions (see Table 3.5-4). The projected future 47-dBA noise level would be below the 67-dBA threshold and remain faint to moderate and typical of the rural noise environment experienced in the northern portion of the study area.

3.5.4.2 Alternative B

Because traffic volumes and operating characteristics would be the same under this alternative as those described for Alternative A, projected noise levels would be the same as shown in Table 3.5-5.

3.5.4.3 Alternative C

Because traffic volumes and operating characteristics would be the same under this alternative as those described for Alternative A, projected noise levels would be the same as shown in Table 3.5-5.

3.5.4.4 Alternative D

Under the No Action alternative, improvements to Bautista Canyon Road would not occur. Conditions would remain the same as described above in Section 3.5.1. Future increases in traffic volumes may occur within the corridor as a result of growth within Riverside County; however, as discussed in Section 3.3 of this document, volumes are anticipated to be negligible. Thus, noise conditions would remain faint to moderate and typical of rural residential areas.

3.5.5 Mitigation

Alternatives A, B, and C

As discussed, noise levels are anticipated to exceed the abatement criteria in the southern portion of the study area. The southern segment of Bautista Canyon Road is currently the least traveled portion of the study area and, as noted, the impact is a result of increased sound energy from additional vehicle passby events during the peak travel hour.

The most common measures considered to reduce noise levels are noise barriers. Noise barriers are most effective in urban areas where development densities make them feasible from an engineering and cost perspective. They are often considered reasonable mitigation assuming variables such as right-of-way cost, noise attenuation, aesthetics, and construction cost are favorable. The FHWA-RD-77-108 noise model shows that a 5 dBA reduction could be achieved with a barrier 3.3 m (10 feet) high having 20 degrees of opening on each end, and placed 6 m (20 feet) from the equivalent lane. Such a wall, 54.5 m (180 feet) from the receptor, would be about 300 m (990 feet) in length. The cost at an estimated $60 per square foot would be close to $600,000; this is not a reasonable expenditure to obtain a small noise reduction at a single property for a noise level already 20 dBA below the noise abatement criteria.

Therefore, noise impacts in the southern portion of the study area would remain adverse and unmitigable.

3.6 Biological Resources

Biological resources include plant and animal species and the vegetation communities within which they occur. This analysis focuses on species or vegetation communities that are important to the function of biological systems, that are of special public importance, or that are protected under federal or state law. For purposes of the EIS/EIR, these resources are divided into six major categories: botanical resources; zoological resources; regulated waterways, wetlands, and riparian areas; sensitive species; habitat connectivity and wildlife movement; and regional resource management programs.

Botanical Resources include all existing terrestrial plant communities as well as individual component species. The affected environment for botanical resources includes only those areas potentially subject to ground disturbance. The vegetation communities within the survey area include some of the predominant communities in the region.

Zoological Resources include all animals with the exception of those identified as special status species or species of regional special concern, which are discussed under Sensitive Species below.

Regulated Waterways, Wetlands, and Riparian Areas are resources subject to federal authority under Section 401 and 404 of the Clean Water Act (CWA) and subject to state authority under Section 1600 of the California Fish and Game Code. The term “waters of the U.S.” is broadly defined to include navigable waters (including intermittent streams), impoundments, tributary streams, and wetlands. Areas meeting the definition of “waters of the U.S.” are under the jurisdiction of the USACE. They are considered important to public interest because they perform significant biological functions, such as providing nesting, breeding, foraging, and spawning environments for a wide variety of resident and migratory animal species. In addition, wetlands help improve water quality and provide flood protection and erosion control. The CDFG regulates all unvegetated waterways and wetland and riparian habitats.

Sensitive Species include special status species and species of regional special concern. Special status species are those plant and animal species listed as threatened, endangered, or proposed as such by USFWS under the Endangered Species Act. The federal Endangered Species Act protects federally listed threatened and endangered plant and animal species and their critical habitat. Species of regional special concern include those species formerly considered as candidates for federal listing; species listed as sensitive by the USDAFS; species of concern to the state of California including those species listed as threatened and endangered by the state of California under the California Endangered Species Act; species listed as sensitive by the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP); and species that are regionally rare or of limited distribution.

Habitat Connectivity and Wildlife Movement are regional, landscape-level issues that can influence the health of ecological communities and species populations.

Regional Resource Management Programs have been developed for the region in which this project occurs. The Western Riverside County MSHCP is a comprehensive Habitat Conservation Plan (HCP) designed to manage the biological resources in the region. The SBNF Land and Resource Management Plan (LRMP) is a regional forest plan that provides guidelines for the management of biological resources on SBNF lands.

General plant and wildlife surveys for the project were conducted to identify on-site biological resources and to assess potential effects to sensitive biological resources (AMEC, 2002a). Surveys were conducted during the appropriate time of year and time of day to detect species occurrence. Rare plant surveys were timed to correspond with the blooming periods of the identified target species known from the area, based on existing database records. Focused surveys were conducted during the 2001 season for Quino checkerspot butterfly (*Euphydryas editha Quino*), arroyo toad (*Bufo californicus*), coastal California gnatcatcher (*Polioptila californica californica*), southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*), and San Bernardino kangaroo rat (*Dipodomys merriami parvus*). All focused surveys were conducted according to USFWS protocol. Plant and animal species lists were compiled from observations during all surveys. The project study area for biological resources covered a minimum of 46 m (150 ft) on both sides of the proposed roadway alignment centerlines to total 92 m (300 ft). The project study area corridor was extended to greater than 92 m (300 ft) in some locations to capture certain biological resources (Figures 3.6-1 through 3.6-3). A Draft Jurisdictional Waters and Wetland Delineation Report was prepared in June 2002 (AMEC 2002b) and was verified in the field by USACE staff in January 2003. The results of these studies were used as a basis for assessing the potential effects to biological resources.

Coordination with the regulatory agencies has occurred throughout the planning process for this project. An initial site visit was conducted on 12 December 2000 with the County of Riverside, FHWA, USDAFS, USFWS, USACE, CDFG, and the Regional Water Quality Control Board

(RWQCB). Species lists were requested from the USFWS in February 2001. The USFWS and CDFG responded to the NOP on in early March 2001. An interagency meeting to discuss biological resource issues and conduct a field review of the Informal Section 7 Consultation Document was conducted on 28 January 2003. Subsequent meetings to discuss these issues were held on 13 January and 2 March 2004. A draft Biological Assessment-Biological Evaluation was prepared and submitted to USFWS in November 2003 to initiate formal consultation.

3.6.1 Existing Conditions

Botanical Resources

<u>Vegetation Communities</u>

Thirteen vegetation communities were mapped within the project study area and are described below (Table 3.6-1; Figures 3.6-1 through 3.6-3). Each vegetation community has been arranged into habitat groups. These groups include Upland Scrub consisting of coastal sage-chaparral scrub and big sagebrush scrub; Chaparral consisting of bigberry manzanita chaparral, chamise chaparral, red shank chaparral, scrub oak chaparral, and southern mixed chaparral; Upland Woodland consisting of southern coast live oak woodland; and Riparian consisting of white alder-live oak riparian forest, southern cottonwood-willow riparian forest, open cottonwood-willow riparian forest, and southern willow scrub. The study area is a mosaic of these vegetation communities in primarily undisturbed condition. A small acreage of Ruderal/Disturbed area was also mapped within the project study area.

Upland Scrub. The upland scrub habitat group includes coastal sage-chaparral scrub and big sagebrush scrub. The coastal sage-chaparral scrub community includes both drought-deciduous sage scrub species and woody chaparral species, and is often a post-fire successional community. Total vegetative cover includes roughly equal amounts of both scrub and chaparral species. Characteristic species include California sagebrush (*Artemisia californica*), flat-top buckwheat (*Eriogonum fasciculatum*), chamise (*Adenostoma fasciculatum*), and black sage (*Salvia mellifera*). This plant community covers 3.8 ha (9.4 ac) and occurs primarily at the lower elevations of the project study area near the CDC Bautista Conservation Camp. Coastal sage scrub is not designated a sensitive plant community in the California Natural Diversity Database (CNDDB), but it does provide habitat for a number of sensitive wildlife species.

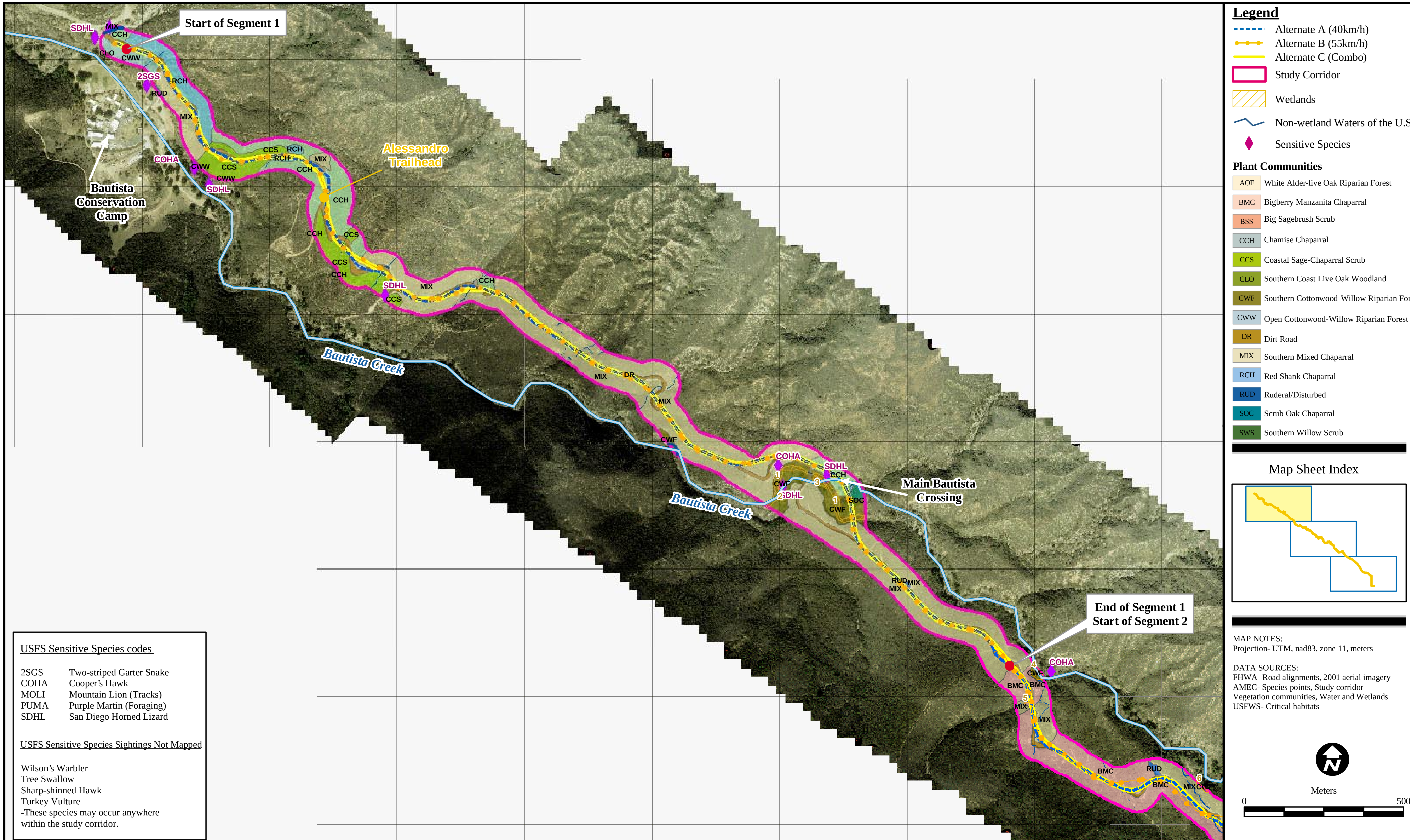
Big sagebrush scrub is a common scrub community typically composed of soft, woody shrubs separated by bare ground or herbaceous cover. Dominant species are big sagebrush *(Artemisia tridentata*) and brittlebush (*Encelia farinosa*). Herbaceous cover is dominated by cheat grass (*Bromus tectorum*). This community occurs exclusively at the higher elevation of the study area south of Tripp Flats and occupies approximately 12.6 ha (31.1 ac).

Table 3.6-1
Vegetation Communities within the Study Corridor for the Bautista Canyon Road Project

Vegetation Community	Hectares	Acres	% of Study Corridor
Upland Scrub	**16.4**	**40.5**	**11.7**
Big sagebrush scrub	12.6	31.1	9.0
Coastal sage-chaparral scrub	3.8	9.4	2.7
Chaparral	**98.7**	**244.0**	**70.7**
Southern mixed chaparral	71.5	176.6	51.2
Red shank chaparral	14.8	36.5	10.6
Bigberry manzanita chaparral	7.5	18.4	5.3
Chamise chaparral	4.9	12.1	3.5
Scrub oak chaparral	0.1	0.3	< 0.1
Upland Woodland	**0.1**	**0.3**	**< 0.1**
Southern coast live oak woodland	0.1	0.3	< 0.1
Riparian	**9.8**	**24.2**	**7.1**
Southern willow scrub	7.8	19.2	5.6
Southern cottonwood-willow riparian forest	1.9	4.7	1.4
White alder-live oak riparian forest	<0.1	0.2	< 0.1
Open cottonwood-willow riparian forest	<0.1	0.1	< 0.1
Ruderal/Disturbed	**1.7**	**4.2**	**1.2**
Plant Community Subtotal	**126.7**	**313.2**	**90.7**
Existing dirt road-no vegetation	13.0	32.1	9.3
Study Corridor Total*	**139.7**	**345.3**	**100**

* Totals may not sum due to rounding

Chaparral. Several forms of chaparral occur within the study corridor including bigberry manzanita chaparral, chamise chaparral, red shank chaparral, scrub oak chaparral, and southern mixed chaparral. Chaparral is widely distributed throughout California on dry slopes and ridges at lower elevations where it occupies thin, rocky, or heavy soils. It typically consists of shrubs with resilient broad leaves; however, species composition varies considerably. The chaparral types that occur within the study area are differentiated and named based on the dominant species in the community. Bigberry manzanita chaparral covers 7.5 ha (18.4 ac) and occurs primarily south of the main Bautista Creek crossing near the switchback section of the roadway. Chamise chaparral covers 4.9 ha (12.1 ac) and occurs in patches with other chaparral types at lower elevations. Red shank chaparral covers 14.8 ha (36.5 ac) and occurs in patches throughout the study corridor. Although relatively common within the study area, red shank chaparral is listed as a sensitive plant community by the CNDDB. Scrub oak chaparral covers 0.1 ha (0.3 ac) and occurs in a single patch in the southern section of the study corridor. Southern mixed chaparral covers 71.5 ha (176.6 ac) and occurs throughout the study corridor. Overall, chaparral plant communities combined cover 98.7 ha (243.9 ac) (nearly 78 percent of the total plant community coverage).



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Existing Biological Resources

FIGURE 3.6-1

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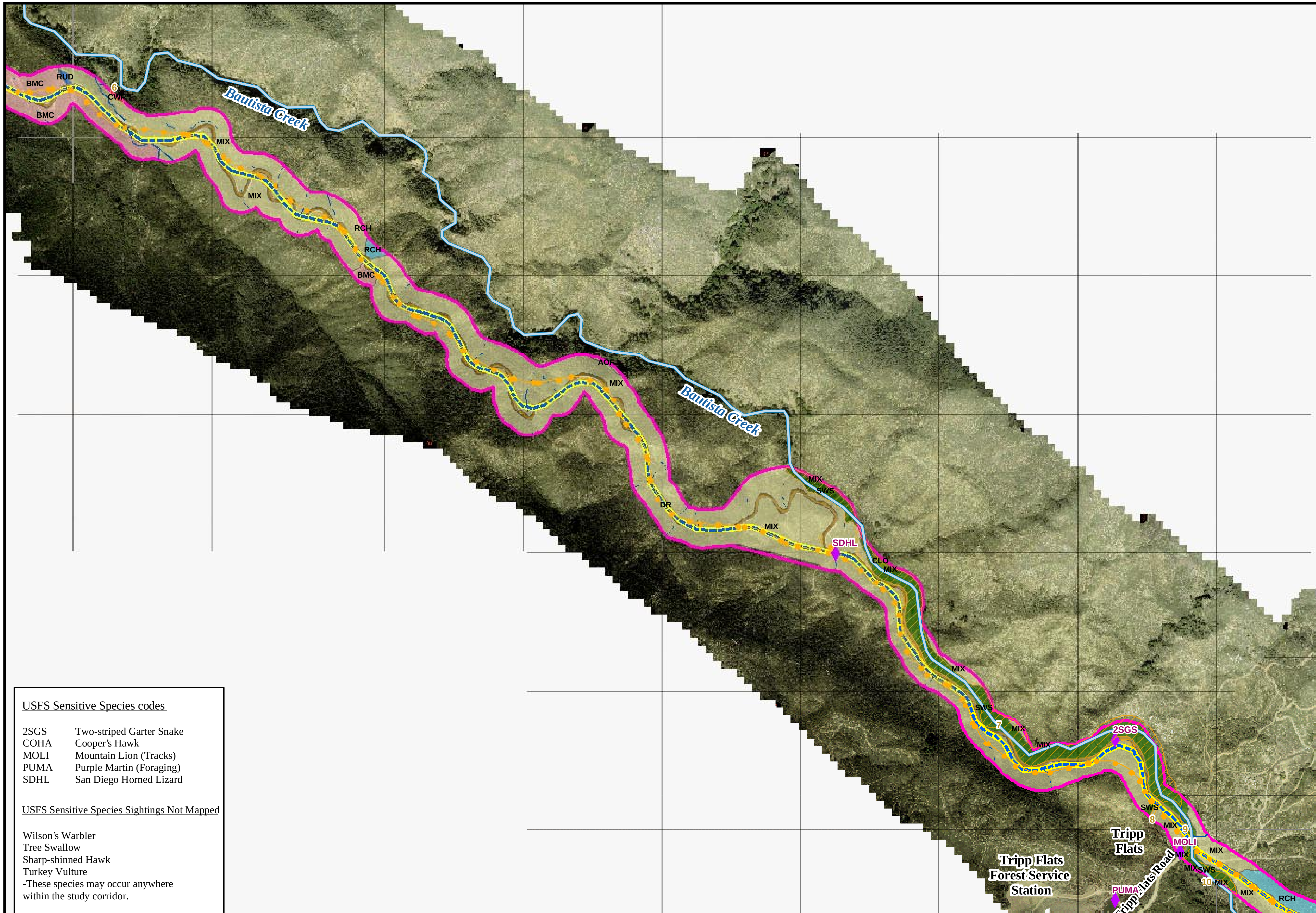

Legend

- Alternate A (40km/h)
- Alternate B (55km/h)
- Alternate C (Combo)
- Study Corridor
- Wetlands
- Non-wetland Waters of the U.S.
- Sensitive Species

Plant Communities

AOF	White Alder-live Oak Riparian Forest
BMC	Bigberry Manzanita Chaparral
BSS	Big Sagebrush Scrub
CCH	Chamise Chaparral
CCS	Coastal Sage-Chaparral Scrub
CLO	Southern Coast Live Oak Woodland
CWF	Southern Cottonwood-Willow Riparian Forest
CWW	Open Cottonwood-Willow Riparian Forest
DR	Dirt Road
MIX	Southern Mixed Chaparral
RCH	Red Shank Chaparral
RUD	Ruderal/Disturbed
SOC	Scrub Oak Chaparral
SWS	Southern Willow Scrub

Map Sheet Index

MAP NOTES:
Projection- UTM, nad83, zone 11, meters

DATA SOURCES:
FHWA- Road alignments, 2001 aerial imagery
AMEC- Species points, Study corridor
Vegetation communities, Water and Wetlands
USFWS- Critical habitats

Meters
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Existing Biological Resources (Continued)

FIGURE 3.6-2

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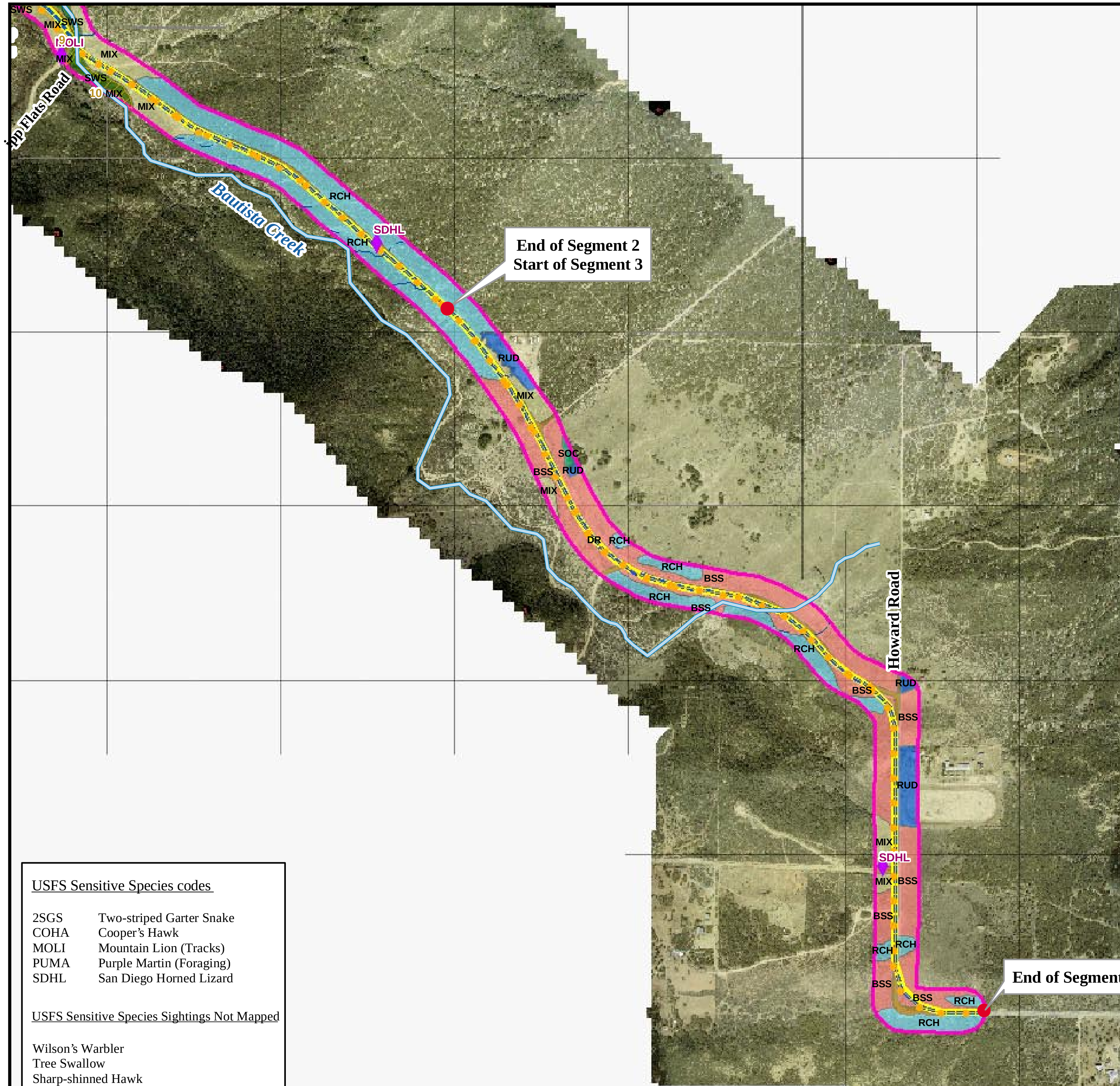

USFS Sensitive Species codes

2SGS	Two-striped Garter Snake
COHA	Cooper's Hawk
MOLI	Mountain Lion (Tracks)
PUMA	Purple Martin (Foraging)
SDHL	San Diego Horned Lizard

USFS Sensitive Species Sightings Not Mapped

Wilson's Warbler
Tree Swallow
Sharp-shinned Hawk
Turkey Vulture
-These species may occur anywhere within the study corridor.

Legend

- Alternate A (40km/h)
- Alternate B (55km/h)
- Alternate C (Combo)
- Study Corridor
- Wetlands
- Non-wetland Waters of the U.S.
- Sensitive Species

Plant Communities

AOF	White Alder-live Oak Riparian Forest
BMC	Bigberry Manzanita Chaparral
BSS	Big Sagebrush Scrub
CCH	Chamise Chaparral
CCS	Coastal Sage-Chaparral Scrub
CLO	Southern Coast Live Oak Woodland
CWF	Southern Cottonwood-Willow Riparian Forest
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RUD	Ruderal/Disturbed
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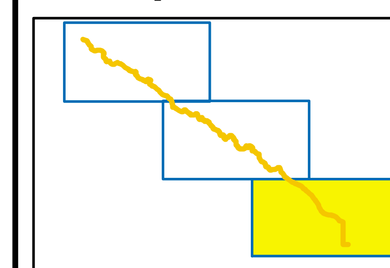
SWS	Southern Willow Scrub

Map Sheet Index



MAP NOTES:
Projection- UTM, nad83, zone 11, meters

DATA SOURCES:
FHWA- Road alignments, 2001 aerial imagery
AMEC- Species points, Study corridor
Vegetation communities, Water and Wetlands
USFWS- Critical habitats

Meters
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Existing Biological Resources (Continued)

FIGURE
3.6-3

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Upland Woodland. Southern coast live oak woodland in the study corridor is characterized as an open, savanna-like woodland dominated by the evergreen coast live oak (*Quercus agrifolia*). A nonnative grass herbaceous layer forms the understory of this community. Southern coast live oak woodland covers 0.1 ha (0.3 ac) of the study corridor and is located in one location at the northernmost end of the study corridor.

Riparian. Riparian forest is an open or closed canopy forest that is generally greater than 6 m (20 ft) high and occupies relatively broad drainages and floodplains supporting perennially wet streams. Several forms of riparian forest occur within the study corridor including white alder-live oak riparian forest, southern cottonwood-willow riparian forest, and open cottonwood-willow riparian forest. This community is dominated by mature individuals of winter deciduous trees, including Fremont cottonwood (*Populus fremontii*) and several species of willows (*Salix exigua, S. laevigata, S. lasiolepis*) and often has a dense understory of shrubby willows, mulefat (*Baccharis salicifolia*), and mugwort (*Artemisia douglasiana*). The dominant species require moist, bare mineral soil for germination and establishment. This is provided after floodwaters recede, leading to uniform-aged stands. Riparian forest differs from riparian woodland in that western sycamore (*Platanus racemosa*) is generally lacking or at least is not dominant. Coast live oaks are also mostly absent from this community. Within the study corridor, the riparian forest communities occur in association with Bautista Creek and cover approximately 2.0 ha (5.0 ac). Open cottonwood-willow riparian forest and southern cottonwood-willow riparian forest are listed as sensitive plant communities by the CNDDB. In addition, these riparian communities may qualify as jurisdictional wetlands that are regulated by the USACE, and as jurisdictional riparian areas that are regulated by the CDFG (see Section 3.6.2).

Southern willow scrub is a dense, broad-leafed, winter-deciduous association dominated by several species of willow (S. *exigua, S. laevigata, S. lasiolepis*). This association is found on loose, sandy, or fine gravelly alluvium deposited near stream channels during floods, and most stands are too dense to allow much understory to develop. Within the study corridor, southern willow scrub covers 7.8 ha (19.2 ac) and occurs in association with Bautista Creek and its tributaries. Southern willow scrub is listed as a sensitive plant community by the CNDDB. In addition, southern willow scrub areas may qualify as jurisdictional wetlands that are regulated by the USACE, and as jurisdictional riparian areas that are regulated by the CDFG (see Section 3.6.2).

Ruderal/Disturbed. Ruderal and/or disturbed habitats are not distinguished as separate habitat types in this document. Ruderal habitat develops on sites that have been significantly disturbed, graded and/or heavily compacted. Ruderal habitat can include large areas of bare ground or may be vegetated with invasive, broad-leaved, non-native plant species. These areas have often been significantly altered by agriculture, construction, or other land-clearing activities, and the species composition and site conditions are not characteristic of the disturbed phase of one of the plant associations within the study region. Such habitat is typically found in vacant lots, roadsides, construction staging areas, or abandoned fields and is dominated by nonnative annual species and perennial broadleaved species. This plant community differs from areas mapped as dirt roads by the presence of vegetative cover. Ruderal or disturbed habitat occurs on 1.7 ha (4.2 ac) of the study area.

Plants

Over 180 species of plants were identified within the study corridor. Of these, 53 species were native annuals, 109 species were native perennials, and 21 species were nonnatives. One California Native Plant Society (CNPS)-listed sensitive plant species, chaparral sand verbena (*Abronia villosa aurita*), was located within the study corridor and 15 other sensitive plant species are known to occur in the surrounding region. A complete list of the sensitive plant species observed in the study corridor is provided in the Informal Section 7 Consultation Document (AMEC 2002a). Sensitive plant species are discussed in further detail under Sensitive Species in this section.

Zoological Resources

General Wildlife Habitat

There are two primary wildlife habitat types present within the project study area: upland (chaparral, upland scrub, upland woodland) and riparian (forest and willow scrub). Chaparral, upland scrub, and upland woodland habitats comprise a majority of the study corridor for Bautista Canyon. Within the project study corridor, these plant communities cover approximately 115.1 ha (284.4 ac). Bautista Creek and its tributaries provide high-quality riparian habitat for a diverse mix of species. Within the study corridor, the riparian forest and willow scrub communities cover approximately 9.8 ha (24.2 ac). Bautista Creek is an intermittent waterway that is dry approximately half the year and no natural ponds or deep pools hold water throughout the entire year. As a result, Bautista Creek is not anticipated to support significant fish populations. Aquatic habitats are addressed collectively with riparian habitats. The vegetation communities in the project study area support or have the potential to support sensitive species (see Sensitive Species in this section). The high-quality upland and riparian habitats in Bautista Canyon are part of a larger, contiguous tract of relatively undisturbed natural area within the SBNF. This larger natural area, which includes Bautista Canyon, is a regionally important wildlife area.

Wildlife

During surveys of the study corridor, 139 species of vertebrate animals were found in the study corridor. These included 4 amphibian species, 14 reptile species, 100 bird species, and 21 mammal species. No fish species were detected during general biological surveys of the project study area. In addition to the vertebrates, 70 species of butterflies were recorded during surveys. A complete list of the vertebrate and butterfly species detected in the study corridor during surveys is provided in the Informal Section 7 Consultation Document (AMEC 2002a). Sensitive animal species that occur or have the potential to occur within the study corridor are addressed under Sensitive Species in this section.

Regulated Waterways, Wetlands, and Riparian Areas

A CWA, Section 404, jurisdictional waters and wetland delineation of the project study corridor (AMEC 2002b) was conducted using USACE criteria and methods defined in the 1987 *Corps of Engineers Wetland Delineation Manual*. Preliminary surveys of the jurisdictional areas were conducted during Spring and Fall 2001 and drainage specific investigations were conducted in February and March 2002. A verification of the delineation was conducted in the field on 27 January 2003 with the USACE, AMEC, the County of Riverside, and the FHWA. The information provided in this document is based on the April 2003 Delineation Report, which includes the minor revisions made during the field verification. The wetland delineation defined all non-wetland waters of the U.S. and wetland areas subject to the jurisdiction of the USACE.

Areas subject to the jurisdiction of the CDFG under Section 1600 include all non-wetland waters of the U.S. described in the April 2003 Delineation Report and all wetland and riparian areas mapped during the vegetation mapping of the study corridor. The jurisdiction of the CDFG is often more inclusive regarding wetland and riparian habitats and includes the entire extent of the riparian and wetland vegetation communities. In general, the USACE jurisdictional wetlands are a subset of the CDFG jurisdictional wetland and riparian areas.

A total of 44 (Table 3.6-2 lists 42 drainages plus 2 subdrainages [2a and 38a]) drainages exhibiting bed and bank and 15 USACE jurisdictional wetland areas were identified with the study corridor (see Figures 3.6-1 through 3.6-3). Bed and bank refers to the formation of channel morphology. Channels and waterways, both large and small, generally exhibit a “bed,” which is the channel bottom, and “banks,” which are the channel sides. Of these drainages and jurisdictional wetland areas, a total of 9.4 ha (23.3 ac) of USACE jurisdictional waters of the U.S. were identified, which includes 8.6 ha (21.3 ac) of wetlands and 0.8 ha (1.9 ac) of non-wetland waters of the U.S. as listed in Table 3.6-2. Under the jurisdiction of the CDFG, 0.8 ha (1.9 ac) of jurisdictional waterways and 9.9 ha (24.5 ac) of riparian habitat have been identified.

The wetland and riparian habitats on Bautista Creek are generally of high quality and function. These wetland and riparian areas provide high value habitat for sensitive amphibian and reptile Several sensitive bird species are known to use these habitats for nesting and foraging. These riparian habitats provide value to mammal species for movement and cover.

USACE Wetlands

The jurisdictional wetland areas within the survey corridor occur in association with Bautista Creek or with intermittent tributaries to Bautista Creek. A total of 15 jurisdictional wetland areas were delineated within the study corridor. These wetlands were associated with Drainages 9, 10, 11, 13, and 33, as shown in Table 3.6-2. Bautista Creek is generally characterized as mature riparian woodland with intermittently flowing water. The upstream forks and intermittent tributaries to Bautista Creek are generally less developed riparian wetlands dominated by willow and mulefat scrub. Near the southern portion of the study corridor, several jurisdictional freshwater seep areas were delineated in the hillsides adjacent to Bautista Creek.

Table 3.6-2
USACE Jurisdictional Determination for the Bautista Canyon Road Project[1]

Feature	Non-wetland Waters of the U.S. in acres (hectares)	Wetland Type[2] (Polygon Number)	Wetlands in acres (hectares)
Drainage 1	0.18 (0.07)	--	0
Drainage 2	0.04 (0.02)	--	0
Drainage 2a	0.01 (0.004)		
Drainage 3	0.04 (0.02)	--	0
Drainage 4	0.09 (0.04)	--	0
Drainage 5	0.06 (0.02)	--	0
Drainage 6	0.17 (0.07)	--	0
Drainage 7	0.07 (0.03)	--	0
Drainage 8[3]	0.12 (0.05)	--	0
Drainage 9[3]	0.015 (0.006)	CWR/SWS (1)	1.16 (0.47)
		CWR (2, 3)	0.28 (0.11)
Drainage 10	0.03 (0.01)	SWS (5)	0.02 (0.008)
Drainage 11	0.024 (0.01)	CWR/SWS (4)	0.29 (0.12)
Drainage 12	0.03 (0.01)	--	0
Drainage 13	0.25 (0.1)	CWR/SWS (6)	0.11 (0.04)
Drainage 14	0.08 (0.03)	--	0
Drainage 15	0.02 (0.008)	--	0
Drainage 16	0.02 (0.008)	--	0
Drainage 17	0.02 (0.008)	--	0
Drainage 18	0.01 (0.004)	--	0
Drainage 19	0.02 (0.008)	--	0
Drainage 20	0.03 (0.01)	--	0
Drainage 21	0.02 (0.008)	--	0
Drainage 22	0.02 (0.008)	--	0
Drainage 23	0.03 (0.01)	--	0
Drainage 24	0.02 (0.008)	--	0
Drainage 25	0.01 (0.004)	--	0
Drainage 26	0.02 (0.008)	--	0
Drainage 27	0.03 (0.01)	--	0
Drainage 28	0.03 (0.01)	--	0
Drainage 29	0.01 (0.004)	--	0
Drainage 30	0.01 (0.004)	--	0
Drainage 31	0.02 (0.008)	--	0
Drainage 32	0.02 (0.008)	--	0

Table 3.6-2 (continued)
USACE Jurisdictional Determination for the Bautista Canyon Road Project[1]

Feature	Non-wetland Waters of the U.S.	Wetland Type[2] (Polygon Number)	Wetlands in acres (hectares)
Drainage 33[3]	0.09 (0.04)	CWR (7)	18.02 (7.29)
		SWS (8, 9, 10)	0.91 (0.37)
		FWS (S1, S2, S3, S4, S5)	0.41 (0.17)
Drainage 34	0.07 (0.03)	--	0
Drainage 35	0.01 (0.004)	--	0
Drainage 36	0.03 (0.01)	--	0
Drainage 37	0.02 (0.008)	--	0
Drainage 38	0.06 (0.02)	--	0
Drainage 38a	0.06 (0.02)	--	0
Drainage 39	0.01 (0.004)	--	0
Drainage 40	0.003 (0.001)	--	0
Drainage 41	0.02 (0.008)	--	0
Drainage 42	0.08 (0.03)	--	0
Total[4]	2.02 ac (0.82 ha)		21.19 ac (8.58 ha)

[1] Acreages reflect the jurisdictional areas shown on Figures 3.6-1 - 3.6-3 and have been verified by the U.S. Army Corps of Engineers during a site visit on 27 January 2003.
[2] SWS=Southern Willow Scrub, CWR=Cottonwood Willow Riparian, FWS=Freshwater Seep
[3] Bautista Creek
[4] Totals may not sum due to rounding

CDFG Wetland and Riparian Areas

Riparian areas subject to the jurisdiction of the CDFG include all vegetation communities grouped in Table 3.6-1 as riparian. These communities include southern willow scrub, southern cottonwood-willow riparian forest, southern coast live oak woodland, white alder-live oak riparian forest, and open cottonwood-willow riparian forest. A total of 9.9 ha (24.5 ac) of CDFG jurisdictional wetland and riparian areas have been mapped within the study corridor. The USACE jurisdictional wetland areas described above are a subset of the CDFG wetland and riparian areas. The wetland and riparian habitat on Bautista Creek are generally of high quality and function. These wetland and riparian habitats provide high value as habitat for sensitive amphibian and reptile species. Several sensitive bird species are known to use these habitats for nesting and foraging. These riparian habitats provide value to mammal species for movement and cover.

Non-wetland Resources

The remaining Drainages 1 to 8, 12, 14 to 32, and 34 to 42 were identified as mainly ephemeral non-wetland waters of the U.S. characterized by upland vegetation species and sandy substrate, with the exception of Drainage 8. Drainage 8 was identified as intermittent non-wetland waters of the U.S. Non-wetland waters of the U.S. in the study area were all tributaries to Bautista Creek and were identified by the presence of bed and bank. A total of 0.82 ha (2.02 ac) of non-wetland waters of the U.S. occur within the Bautista Canyon Road study area (Table 3.6-2). These non-wetland resources are subject to the jurisdiction of both the USACE and CDFG.

Sensitive Species

Sensitive Plants

Sensitive plants include those listed as federal or state threatened or endangered, those proposed for federal or state listing, or candidates for federal or state listing by the USFWS and CDFG, or considered regionally sensitive by the CDFG, USDAFS, or CNPS.

One CNPS-listed sensitive plant species, chaparral sand verbena (*Abronia villosa aurita*), was detected within the study corridor, and 15 other sensitive plant species are known to occur in the region and have the potential to occur. Of the 16 sensitive plant species, 2 are federal and state listed as endangered and are described below. Refer to Table 3.6-3 for detailed status listings of sensitive plants and Figures 3.6-1 through 3.6-3 for locations and habitat mapping.

Table 3.6-3
Sensitive Species Observed or Potentially Occurring in the Study Corridor
Bautista Canyon Road

Species	Protection Status[1]	Habitat	Occurrence Probability[2]
Plants			
Abronia villosa var. *aurita* **Chaparral Sand Verbena**	F: No designation FS: Proposed Sensitive C: No designation CNPS: List 1B/2-3-3 MSHCP: No	Chaparral and coastal sage scrub. Flowering: Jan – Aug.	Occurs
Berberis nevinii **Nevin's Barberry**	F: Endangered FS: Sensitive C: Endangered CNPS: List 1B/3-3-3 MSHCP: Yes	Chaparral, cismontane woodland, coastal scrub, riparian scrub. Flowering: , Mar – Apr	Moderate, suitable habitat exists for the species and modeled habitat exists in the vicinity of the study corridor
Brodiaea filifolia **Thread-leaved Brodiaea**	F: Threatened FS: Sensitive C: Endangered CNPS: List 1B/3-3-3 MSHCP: Yes	Chaparral, cismontane woodland, coastal scrub, playas, and valley and foothill grasslands. Flowering: Mar – Jun.	Low, no suitable habitat (clay soils) occur in the study corridor
Calochortus palmeri var. *munzii* **Munz's Mariposa Lily**	F: No designation FS: Sensitive C: No designation CNPS: 1B/3-2-3 MSHCP: Yes	Vernally moist areas in chaparral and lower montane coniferous forests. Flowering: Jun – Jul.	Low, suitable habitat exists, but the study corridor is barely in the suitable elevation range for the species
Calochortus plummerae **Plummer's Mariposa Lily**	F: No designation FS: Sensitive C: No designation CNPS: List 1B/2-2-3 MSHCP: Yes	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forests, and valley and foothill grasslands. Flowering: May – Jul.	Moderate, suitable habitat exists for this species and populations exist in the vicinity of the study corridor

Table 3.6-3 (continued)
Sensitive Species Observed or Potentially Occurring in the Study Corridor
Bautista Canyon Road

Species	Protective Status[1]	Habitat	Occurrence Probability[2]
Plants (continued)			
Caulanthus simulans **Payson's Jewel-flower**	F: No designation FS: Sensitive C: No designation CNPS: List 4/1-2-3 MSHCP: Yes	Chaparral, coastal sage scrub. Flowering: Mar – Jun.	Moderate, found by AMEC biologist 1 mile NW of corridor
Chaenactis parishii **Parish's Chaenactis**	F: No designation FS: Watch List C: No designation CNPS: List 1B/2-1-2 MSHCP: No	Chaparral. Flowering: May – Jul.	Low, although this species was located in the vicinity of the study corridor, the study corridor is outside of the suitable elevation range for this species
Deinandra mohavensis **Mojave Tarplant**	F: No designation FS: Sensitive C: Endangered CNPS: List 1B/2-1-3 MSHCP: Yes	Chaparral and riparian scrub. Flowering: Jul – Oct	Moderate, suitable habitat exists for the species and known populations occur in the vicinity of the study corridor
Dodecahema leptoceras **Slender-horned Spineflower**	F: Endangered FS: Sensitive C: Endangered CNPS: List 1B/2-1-3 MSHCP: Yes	Chaparral, cismontane woodland, coastal sage scrub (alluvial fan)/sandy. Flowering: Apr – Jun	Moderate, known 1 mile NW of corridor, though the project is above the known elevational range and outside of any modeled habitat for this species
Eriastrum densifolium ssp. s*anctorum* **Santa Ana River Woolly-star**	F: Endangered FS: Sensitive C: Endangered CNPS: List 1B/3-3-3 MSHCP: Yes	Shrubland, alluvial fans and plains; endemic to Santa Ana River watershed, primarily in San Bernardino County; below 2,000 ft.	Very low, known in Riverside County from one fragmented population in City of Riverside
Galium californicum ssp. *primum* **California Bedstraw**	F: No designation FS: Sensitive C: No designation CNPS: List 1B/3-2-3 MSHCP: Yes	Chaparral and lower montane coniferous forests. Flowering: May – Jul	Very low, known occurrences in Reche Canyon and the San Jacinto Mountains
Monardella macrantha ssp. *hallii* **Hall's Monardella**	F: No designation FS: Sensitive C: No designation CNPS: List 1B/2-1-3 MSHCP: Yes	Chaparral, broadleaved upland forests, coniferous forests, cismontane woodlands, grasslands. Flowering: Jun – Aug	Low, known from higher elevation 3 miles SW of study corridor, but within similar elevations to the project area in other locations
Penstemon californicus **California Beardtongue**	F: No designation FS: Sensitive C: No designation CNPS: List 1B/3-2-3 MSHCP: Yes	Chaparral, lower montane coniferous forests, and pinyon/juniper woodlands. Flowering: May – Aug	Low, suitable habitat exists for the species, known occurrence on Rouse Ridge

Table 3.6-3 (continued)
Sensitive Species Observed or Potentially Occurring in the Study Corridor
Bautista Canyon Road

Species	Protective Status[1]	Habitat	Occurrence Probability[2]
Plants (continued)			
Poa atropurpurea **Bear Valley Blue-grass**	F: Endangered FS: Sensitive C: No designation CNPS: List 1B/2-2-3 MSHCP: No	Montane meadows and seeps. Flowering: Apr – May	Very Low, within the suitable elevation range for the species however suitable habitat does not exist for this species in the study corridor
Scutellaria bolanderi ssp. *austromontana* **Southern Skullcap**	F: No designation FS: Sensitive C: No designation CNPS: List 1B/1-2-3 MSHCP: No	Chaparral, cismontane woodlands, lower montane coniferous forests in moist areas sometimes with facultative wetland species. Flowering: Jun – Aug	Very low, known at higher elevations 6 miles north
Streptanthus campestris **Southern Jewel-flower**	F: No designation FS: Sensitive C: No designation CNPS: List 1B/2-1-2 MSHCP: No	Chaparral, lower montane coniferous forests, and pinyon/juniper woodlands. Flowering: May – Jul	Moderate, known populations for this species occur within the vicinity of the study corridor
Invertebrates			
Quino Checkerspot Butterfly *Euphydryas editha quino*	F: Endangered FS: No designation C: No designation MSHCP: Yes	Chaparral, coastal sage scrub with open patches of annual host plants.	Occurs
Amphibians and Reptiles			
Silvery Legless Lizard *Anniella pulchra pulchra*	F: Special concern FS: Sensitive C: Special concern MSHCP: No	Most habitats, sandy substrate.	High
Arroyo Toad *Bufo californicus*	F: Endangered FS: No designation C: Special concern MSHCP: Yes	Pools near permanent or intermittent streams.	Occurs
Rosy Boa *Charina [Lichanura] trivirgata*	F: Special concern FS: Sensitive C: No designation MSHCP: No	Shrublands, especially in areas with rocky outcrops.	High, seen NW of corridor by AMEC biologists
Ring-neck Snake *Diadophis punctatus*	F: Special concern FS: Sensitive C: No designation MSHCP: No	Grasslands, chaparral.	Moderate
Large-blotched Ensatina *Ensatina eschscholtzii klauberi*	F: Special concern FS: Sensitive C: Special concern MSHCP: No	Woody debris in shrublands and woodlands from 1,500 to 5,400 ft	High
San Bernardino Mountain Kingsnake *Lampropeltis zonata parvirubra*	F: Special concern FS: Sensitive C: Special concern MSHCP: Yes	Well illuminated chaparral canyons with rocky outcroppings.	High
San Diego Horned Lizard *Phrynosoma coronatum blainvillii*	F: Special concern FS: Sensitive C: Special concern MSHCP: Yes	Many scrub and woodland habitats, grasslands.	Occurs

Table 3.6-3 (continued)
Sensitive Species Observed or Potentially Occurring in the Study Corridor
Bautista Canyon Road

Species	Protective Status[1]	Habitat	Occurrence Probability[2]
Amphibians and Reptiles (continued)			
Two-striped Garter Snake *Thamnophis hammondii*	F: No designation FS: Sensitive C: Special concern MSHCP: No	Perennial or intermittent streams	Occurs
Birds			
Cooper's Hawk *Accipiter cooperii*	F: No designation FS: Sensitive C: Special Concern MSHCP: Yes	Riparian forest and woodlands.	Occurs
Northern Goshawk *Accipiter gentiles*	F: Special Concern FS: Sensitive C: Special Concern MSHCP: Yes	Moderate to high elevation woodlands and forests.	High
Sharp-shinned Hawk *Accipiter striatus*	F: No designation FS: Sensitive C: Special Concern MSHCP: Yes	Woodlands and shrublands near water.	Occurs
Golden Eagle *Aquila chrysaetos*	F: No designation FS: Sensitive C: Special Concern MSHCP: Yes	Open woodlands and grasslands with cliffs.	Moderate
Cactus Wren *Campylorhynchus brunneicapillus cousei*	F: No designation FS: Sensitive C: Special concern MSHCP: Yes	Coastal sage scrub, shrublands (with cactus).	Low
Turkey Vulture *Cathartes aura*	F: No designation FS: Sensitive C: No designation MSHCP: Yes	Open woodlands, shrublands, and grasslands.	Occurs
Swainson's Thrush *Catharus ustulatus*	F: No designation FS: Sensitive C: No designation MSHCP: No	Riparian forest and woodland with dense understory.	Moderate
Black Swift *Cypseloides niger*	F: No designation FS: Sensitive C: Special concern MSHCP: Yes	Riparian woodland and forest cliffs.	Moderate
Yellow Warbler *Dendroica petechia brewsteri*	F: No designation FS: Sensitive C: Special concern MSHCP: Yes	Riparian scrubs, woodlands, and forests.	Occurs
Southwestern Willow Flycatcher *Empidonax traillii extimus*	F: Endangered FS: No designation C: Endangered MSHCP: Yes	Riparian woodlands with willows, cottonwoods, or alders.	Occurs
Prairie Falcon *Falco mexicanus*	F: No designation FS: Sensitive C: No designation MSHCP: Yes	Grasslands and open shrublands.	Moderate
American Peregrine Falcon *Falco peregrinus anatum*	F: No designation (delisted) FS: Sensitive C: Endangered MSHCP: Yes	Cliffs near open water bodies.	Low

Table 3.6-3 (continued)
Sensitive Species Observed or Potentially Occurring in the Study Corridor
Bautista Canyon Road

Species	Protective Status[1]	Habitat	Occurrence Probability[2]
Birds (continued)			
Mountain Yellow-legged Frog *Rana mucosa*	F: Endangered FS: Sensitive C: Special Concern MSHCP: Yes	Small, very rocky streams at moderate to high elevations.	Low
Purple Martin *Progne subis*	F: No designation FS: Sensitive C: No designation MSHCP: Yes	Open forest and woodland, near water.	Occurs
Coastal California Gnatcatcher *Polioptila californica californica*	F: Threatened FS: No designation C: Special concern MSHCP: Yes	Coastal sage scrub.	Absent during 2001 focused surveys; reports 5 miles NW of corridor
Least Bell's Vireo *Vireo bellii pusillus*	F: Endangered FS: No designation C: Endangered MSHCP: Yes	Nests in riparian habitats, may forage in adjoining areas.	Absent during 2001 focused surveys
Gray Vireo *Vireo vicinior*	F: No designation FS: Sensitive C: Special concern MSHCP: No	Chaparral, dry shrubby areas, sparse woodland, 2,000-6,500 ft.	Moderate
Wilson's Warbler *Wilsonia pusilla*	F: No designation FS: Sensitive C: Special concern MSHCP: Yes	Willow and alder thickets near wet, moist woodlands.	Occurs
Mammals			
Pallid Bat *Antrozous pallidus*	F: No designation FS: Sensitive C: Special concern MSHCP: No	Caves, mines, cliffs, abandoned dwellings. Forages in most habitats.	Moderate
Western Big-eared Bat *Corynorhinus townsendii townsendii*	F: Special concern FS: Sensitive C: Special concern MSHCP: No	Caves, mines, cliffs, abandoned dwellings. Forages in most habitats.	Moderate
San Bernardino Kangaroo Rat *Dipodomys merriami parvus*	F: Endangered FS: No designation C: Special concern MSHCP: Yes	Alluvial fans, floodplains, washes.	Absent during 2001 focused surveys; known 5 miles NW
Mountain Lion *Felis concolor*	F: No designation FS: Sensitive C: No designation MSHCP: Yes	All habitat types.	Occurs
American Badger *Taxidea taxus*	F: No designation FS: Sensitive C: No designation MSHCP: No	Open areas in grasslands and shrublands.	Low

[1] **PROTECTIVE STATUS DEFINITIONS:**

(F): Federal designations (Federal Endangered Species Act [ESA], USFWS):
Endangered - Federally listed, Endangered.
Threatened - Federally listed, Threatened.
Special concern - Federal Special Concern species.
No Designation - Not designated.

(FS): Forest Service designations (Forest Service Manual 2600, U.S. Forest Service):
Sensitive - Forest Service Sensitive.
No Designation - Not designated.

(C): State designations (California ESA, CDFG):
Endangered - State listed, Endangered.
Threatened - State listed, Threatened.
Special concern - CA Special Concern species.
No Designation: Not designated.

MSHCP: Western Riverside County Multiple Species Habitat Conservation Program:
Yes - Addressed by the plan
No - Not addressed by the plan

California Native Plant Society (CNPS) designations:
List 1B - Plants rare and endangered in California and throughout their range.
List 2 - Plants rare, threatened or endangered in California but more common elsewhere.
List 3 - Plants for which more information is needed.
List 4 - Plants of limited distribution; a "watch list."

CNPS R-E-D Code:
Rarity:
1 - Rare, but found in sufficient numbers and distributed widely enough that the potential for extinction or extirpation is low at this time.
2 - Occurrence confined to several populations or one extended population.
3 - Occurrence limited to one or a few highly restricted populations, or present in such small numbers that it is seldom reported.

Endangerment:
1 - Not endangered.
2 - Endangered in a portion of its range.
3 - Endangered throughout its range.

Distribution:
1 - More or less widespread outside California.
2 - Rare outside California.
3 - Endemic to California (does not occur outside CA).

[2] **OCCURRENCE PROBABILITY DEFINITIONS:**
Occurs - Observed on the site by AMEC biologists, or recorded on-site by other qualified biologists.
High - Observed in similar habitat in region by qualified biologists, or habitat on the site is a type often utilized by the species and the site is within the known range of the species.
Moderate - Reported sightings in surrounding region, or site is within the known range of the species and habitat on the site is a type occasionally used by the species.
Low - Site is within the known range of the species, but habitat on the site is rarely used by the species.
Absent - A focused study failed to detect the species, or, no suitable habitat is present.

Slender-horned Spineflower. The spineflower is on both federal and state lists as endangered. An annual, herbaceous spring-blooming species (April through June) that produces white to pink flowers, this species is considered dependent on mature alluvial scrub habitat. The study corridor is above the known range of the species. Small areas of appropriate habitat exist in the study corridor in the downstream section below the CDC Bautista Conservation Camp, but the species was not detected in the study corridor by AMEC biologists in 2001. However, USDAFS biologists and botanists observed this species in 2001 at the known location in Bautista Canyon, approximately 3 km (2 mi) downstream of the study corridor near Hixon Trail.

Santa Ana River Woolly-star. The woolly-star is on both federal and state lists as endangered. This species is a perennial herb that occurs along the Santa Ana River and Lytle and Cajon Creek floodplains from the base of the San Bernardino Mountains in San Bernardino County southwest along the Santa Ana River through Riverside County into the Santa Ana

Canyon. A summer-blooming species (June through September), this species is found within open washes and early-successional alluvial fan scrub at elevations between 150 to 610 m (492 to 2,007 ft). This species was not observed in the study corridor during focused searches of appropriate habitat and has a very low probability of occurrence. Because of its restricted range and the negative survey results, it is presumed absent (AMEC 2002a).

Other Sensitive Plants. With the exception of chaparral sand verbena, no sensitive plant species were detected in the study corridor. Sensitive plant species that are known from the region and have a low probability of occurring within the study area include Nevin's barberry (*Berberis nevinii*), thread-leaved brodiaea (*Brodiaea filifolia*), Munz's mariposa lily (*Calochortus palmeri* var. *munzii*), Plummer's mariposa lily (*Calochortus plummerae*), Payson's jewel-flower (*Caulanthus simulans*), Parish's chaenactis (*Chaenactis parishii*), Mojave tarplant (*Deinandra mohavensis*), California bedstraw (*Galium californicum* ssp. *primum*), Hall's monardella (*Monardella macrantha* ssp. *hallii*), California beardtongue (*Penstemon californicus*), Bear Valley blue-grass (*Poa* atropurpurea), southern skullcap (*Scutellaria bolanderi* ssp. *austromontana*), and southern jewel-flower (*Streptanthus campestris*).

<u>Sensitive Animals</u>

Sensitive animal species include those listed as federal or state threatened or endangered, those proposed for federal or state listing, or candidates for federal or state listing by the USFWS and CDFG, or those species considered regionally sensitive by the CDFG, USDAFS, or other regional organizations.

Invertebrates

Quino Checkerspot Butterfly. The Quino checkerspot butterfly (*Euphydryas editha quino)* is a federally listed endangered species, that historically occurred widely in Los Angeles, Orange, San Bernardino, Riverside, and San Diego counties, as well as in Baja California, Mexico. This is the only sensitive invertebrate known to occur within the project study corridor. The range has been reduced drastically in recent years; existing (and probably isolated) colonies are now known only from western Riverside County, southern San Diego County, and northern Baja California. While habitat loss and fragmentation are probably the main reasons for the decline, grazing, drought, fire management practices, over-collecting, and the displacement of larval host plants by invasive grasses and weeds have likely contributed to it. The Quino checkerspot butterfly was listed as endangered by the USFWS on 16 January 1997. During 2001 protocol surveys, this species was observed around a hilltop in the southern section of the study area approximately 234 m (900 ft) west of the roadway. This population appears to be a small isolated colony located in an open, previously disturbed area south of the hilltop approximately 0.5 km (0.3 mi) northwest of the southern end of the study corridor.

Amphibians and Reptiles

A total of nine sensitive amphibian and reptile species have been detected or have the potential to occur within the project study corridor. Of these nine species, two are on the federal list as endangered and six are federal species of special concern. Seven are state species of special concern and eight are listed as sensitive by the USDAFS. Three sensitive species were observed within the study corridor: arroyo toad (*Bufo californicus*), San Diego horned lizard (*Phrynosoma coronatum blainvillii*), and two-striped garter snake (*Thamnohpis hammondii*). Refer to Table 3.6-1 for detailed status listings of sensitive amphibians and reptiles and Figures 3.6-1 through 3.6-3 for locations and habitat mapping.

Arroyo Toad. The arroyo toad was listed as endangered by the USFWS in December 1994. This species occurs in coastal and desert drainages from Monterey County, California, to northwestern Baja California, Mexico, but studies estimate that arroyo toads have lost up to 76 percent of their historical habitat in the last 100 years. Losses have been due to urban development, water diversion, agriculture, construction, introduced predators, sand and gravel mining activities, and reservoirs. The USFWS designated Critical Habitat for the species in 2001, but this designation was overturned in November 2002. The northern 2.4 km (1.5 mi) of the proposed project was previously designated as Critical Habitat for the species. A single adult arroyo toad was observed immediately adjacent to the study corridor on 15 May 2001. It was found about 213 m (700 ft) upstream of the main road into the CDC Bautista Conservation Camp. It was in a drying streambed that still had some moist spots. There was limited surface water about 305 m (1,000 ft) to the north. Arroyo toads have been recorded in Bautista Canyon downstream of the study corridor near Hixon Trail, approximately 3.2 km (2 mi) downstream of the northern terminus of the study corridor, by both AMEC biologists and other biologists. U.S. Geological Survey provided information on the specific downstream Hixon Trail locations (AMEC 2002a).

Mountain Yellow-legged Frog. The southern California population of this species has been recognized as a distinct vertebrate population segment and was listed as federally endangered in 2002. Small, isolated populations of the southern California population segment are still believed to persist in mountain streams of the San Gabriel, San Bernardino, and San Jacinto mountains. The USFWS has determined that the population segment of this species is declining, having previously occupied mountain streams from northern San Diego County to Los Angeles County. These true frogs are diurnal and feed on terrestrial and aquatic insects. Threats to the species include primarily exotic aquatic species, degradation of water quality, and habitat alteration. Critical Habitat has not been designated for this species. This species prefers small mountain streams characterized by large, rocky substrate. This species was not observed during 2001 general wildlife surveys. Because of its specific habitat requirements and lack of suitable habitat within the study corridor, this species is considered to have a low probability of occurrence (AMEC 2002a).

Other Sensitive Amphibians and Reptiles. Other sensitive species observed within the project study corridor include the San Diego horned lizard and the two-striped garter snake. Amphibians and reptiles that were not observed but have a probability of occurring within the study area include silvery legless lizard (*Anniella pulchra pulchra*), rosy boa (*Charina [Lichanura] trivirgata*), ring-neck snake (*Diadophis punctatus*), large-blotched ensatina (*Ensatina eschscholtzii klauberi*), and San Bernardino Mountain kingsnake (*Lampropeltis zonata parvirubra*).

Birds

A total of 17 sensitive bird species have been detected or have the potential to occur within the project study corridor. Of the 17 species observed or potentially occurring, 4 bird species are listed as state or federal threatened or endangered. Ten are federal species of special concern and 14 are listed as sensitive by the USDAFS. Seven sensitive species were observed within the study corridor: Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk (*Accipiter striatus*), turkey vulture (*Cathartes aura*), yellow warbler (*Dendroica petechia brewsteri*), southwestern willow flycatcher (*Empidonax traillii extimus*), purple martin (*Progne subis*), and Wilson's warbler *(Wilsonia pusilla*). Refer to Table 3.6-1 for detailed status listings of birds and Figures 3.6-1 through 3.6-3 for locations and habitat mapping.

Southwestern Willow Flycatcher. The southwestern willow flycatcher was formerly a common summer resident in lowland willow thickets in southern California, but following the large-scale invasion by brown-headed cowbirds in the 1920s, and the continuing loss of riparian habitat to development and flood control regimes, this subspecies of the widespread willow flycatcher (*Empidonax traillii*) has been nearly eliminated from the region. The southwestern willow flycatcher was listed by the state of California as endangered in 1990, and by the USFWS in 1995. The USFWS designated Critical Habitat for the species in 1997. The study corridor is not within the designated Critical Habitat for this species.

Southwestern willow flycatchers were detected several times during the 2001 protocol surveys. In the upper survey area (the riparian habitat of Bautista Creek near Tripp Flats), three sightings, spanning 47 days during the breeding season, were recorded. These sightings were confined to a very small area of willow riparian habitat, indicating the presence of a breeding territory. Two willow flycatchers were found in the lower survey area on 17 May 2001 (the riparian habitat of Bautista Creek in the vicinity of the CDC Bautista Conservation Camp). One of the flycatchers, which was silent, was found in the oak woodland near the Conservation Camp. The second, which was vocalizing, was found approximately 183 m (600 ft) downstream from the stream crossing. These areas were surveyed on subsequent visits and willow flycatchers were not found. The willow flycatchers observed in the lower survey area are assumed to have been migrants (AMEC 2002a).

Least Bell's Vireo. Least Bell's vireos were formerly widespread and common throughout low-lying riparian habitats of central and southern California, but they are now restricted to a limited number of locations. Habitat reduction, due largely to past and present flood control practices, has contributed to this species' significant population decline. Nest parasitism by brown-headed cowbirds has also seriously impacted the species. Least Bell's vireo is listed as both state and federal endangered and Critical Habitat has been designated. The study corridor is not within the designated Critical Habitat for this species. During protocol surveys for this species in 2001, least Bell's vireos were not detected in the study corridor. The riparian habitat along Bautista Creek in the vicinity of the study corridor is considered suitable habitat for this species, but the study corridor is not considered occupied (AMEC 2002a).

American Peregrine Falcon. Peregrine falcon is distributed throughout North America, South America, Africa, and Australia. This species was eliminated as a breeding resident from much of the continental United States during the 1950s but is currently being reintroduced into its historical range. This falcon is a rare winter visitor and breeding resident, most commonly observed from October through May. Peregrines are primarily found near large bodies of water where they feed on waterbirds. Peregrine falcon populations have declined due to pesticide contamination that caused declines in reproductive success because of eggshell thinning. This species continues to be threatened by pesticide poisoning on wintering grounds, low breeding densities and reproductive isolation, lack of gene flow between populations, and reduced availability of foraging habitats and avian prey. This species was recently delisted by the USFWS but is state listed as endangered. The peregrine falcon was not observed in the study corridor and has a low probability of occurrence (AMEC 2002a).

Coastal California Gnatcatcher. The coastal California gnatcatcher is a small, mostly gray, nonmigratory songbird found in southern California only in areas with coastal sage scrub. In western Riverside County, this species occurs in coastal sage scrub dominated by flat-top buckwheat, California sagebrush, brittlebush, black sage, and/or white sage (*Salvia apiana*). This habitat is represented in the study corridor by coastal sage-chaparral scrub, consisting of characteristic coastal sage scrub species such as flat-top buckwheat and black sage mixed with characteristic chaparral species such as red shank and chamise. Several studies have revealed a major loss of coastal sage scrub in recent years and corresponding severely reduced population levels of California gnatcatcher. The California gnatcatcher was listed as a federally threatened species by the USFWS on 25 March 1993. No Critical Habitat is designated in the vicinity of the project. No California gnatcatchers were detected in the survey corridor during focused protocol surveys for the species, and the study corridor is not considered occupied (AMEC 2002a).

Other Sensitive Birds. Other sensitive species observed within the project study corridor include Cooper's hawk, sharp-shinned hawk, turkey vulture, yellow warbler, purple martin, and Wilson's warbler. Birds that were not observed but have a low probability of occurring within the study area include northern goshawk (*Accipiter gentiles*), golden eagle (*Aquila chrysaetos*), cactus wren (*Campylorhynchus brunneicapillus cousei*), Swainson's thrush (*Catharus ustulatus*), black swift (*Cypseloides niger*), prairie falcon (*Falco mexicanus*), and gray vireo (*Vireo vicinior*).

Mammals

A total of five sensitive mammal species have been detected or have the potential to occur within the project study corridor. Of these five, one sensitive species, the mountain lion (*Felis concolor*), was detected within the study corridor. Of the five species, one is federally listed as endangered, the San Bernardino kangaroo rat (*Dipodomys merriami parvus*). Four are listed as sensitive by the USDAFS and three are state species of special concern. Refer to Table 3.6-1 for detailed status listings of mammals and Figures 3.6-1 through 3.6-3 for locations and habitat mapping.

San Bernardino Kangaroo Rat. The federally endangered San Bernardino kangaroo rat is one of 19 subspecies of the widespread and generally common Merriam's kangaroo rat (*D. merriami*). The San Bernardino kangaroo rat occurred historically from the San Bernardino Valley south to the Menifee Valley and formerly occupied up to 129,504 ha (320,000 ac). That area has been reduced to approximately 1,295 ha (3,200 ac) by development, agriculture, and flood control activities. The subspecies was emergency listed as endangered by the USFWS in January 1998; a final rule extending protection for the subspecies was made on 24 September 1998. Critical Habitat for the species was recently designated for the lower reach of Bautista Creek downstream of the northern terminus of the study corridor.

Federally permitted biologists and assistants conducted live trapping surveys for San Bernardino kangaroo rats for five consecutive nights, as required by USFWS terms and conditions. Seven species of small mammals were captured, but no San Bernardino kangaroo rats were found. This subspecies has recently been documented near the Hixon Trail, approximately 3.2 km (2 mi) downstream of the northern terminus of the study corridor. Habitat in this area of the project is mostly unsuitable for the species. San Bernardino kangaroo rats are associated with sage scrub vegetation on sandy soils. Their highest population density is found in intermediate-aged alluvial scrub. Areas of occurrence along the San Jacinto River and the lower reaches of Bautista Creek contain alluvial fan sage scrub, which is almost absent from the project study area. Drainages in the project study area, including Bautista Creek, are typically narrow creek beds surrounded by dense chaparral. Habitat along Horse Creek and Bautista Creek is marginally suitable for the San Bernardino kangaroo rat, and the areas determined to be the most similar to their typical habitat were trapped (AMEC 2002a). The study corridor is not considered occupied by the species.

Other Sensitive Mammals. Mountain lion tracks were observed within the study corridor and the species is known to occur throughout the region. Mountain lions use a large home range area and are susceptible to habitat fragmentation. The pallid bat and the western big-eared bat are two species of bats with a high probability of occurring within the study corridor. These bats are often found in caves, mines, or crevices. The American badger also has low probability of occurrence within the project study corridor.

Habitat Connectivity and Wildlife Movement

Habitat connectivity and wildlife movement are landscape-level issues that can influence the health of ecological communities and species populations. Habitats that become fragmented often cause species to be susceptible to adverse edge effects, such as exotic species introductions and increased predation. Furthermore, habitat connectivity is important for facilitating wildlife movement. Increased fragmentation or barriers to movement can create isolated species populations and reduced population success. Large mammal species, such as deer and mountain lion, utilize a large territory and can be affected by fragmentation and movement barriers.

The Bautista Canyon area is characterized by contiguous, relatively undisturbed, natural habitat. The canyon and the surrounding areas provide habitat for a diverse mix of wildlife species. The specific location of wildlife movement corridors in Bautista Canyon has not been well documented. Based on AMEC biological surveys and input from the USDAFS, the primary wildlife movement corridor in the canyon is considered to be the Bautista Creek riparian corridor. Evidence of wildlife movement has been documented in and around the creek corridor. Evidence of wildlife movement has also been recorded in the Tripp Flats area. The existing Bautista Canyon Road acts as a minor barrier to wildlife movement for some species; however, the narrow dirt roadway and low vehicle speed and volume likely allow substantial wildlife movement across the existing road.

3.6.2 Regulatory Setting

Federal/State

As noted in Section 3.6, regulated waterways, wetlands, and riparian areas are resources subject to federal authority under Section 401 and 404 of the CWA and subject to state authority under Section 1600 of the California Fish and Game Code. Areas meeting the definition of "waters of the U.S." are under the jurisdiction of the USACE. The CDFG regulates all unvegetated waterways and wetland and riparian habitats.

<u>SBNF Land and Resource Management Plan (LRMP) – Biological Resources Goals</u>

The following biological resource goals identified in the SBNF LRMP would apply to the project:

Riparian Areas

- *Protect and enhance riparian areas, giving emphasis to riparian dependent resources.*
- *Maintain water flow needed to support aquatic and riparian areas and dependent uses.*

Wildlife, Fish, and Sensitive Plants

- *Protect and improve habitats of threatened and endangered plants and animals to aid in the recovery of the species in cooperation with the state and other federal agencies.*
- *Maintain and improve habitats of emphasis species.*

Local

<u>Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)</u>

The MSHCP is a comprehensive regional HCP focusing on conservation of species and associated habitats to address biological and ecological diversity conservation needs in western Riverside County. This plan is one of several regional multi-species habitat-planning efforts within southern California, which have been instigated with the overall goal of maintaining biological diversity within a rapidly urbanizing region. The MSHCP allows the County of Riverside and its cities to better control local land use decisions and maintain a strong economic climate in the region while addressing the state and federal Endangered Species Acts. The MSHCP was released for public review in November 2002.

The MSHCP Planning Area encompasses approximately 0.5 million ha (1.26 million ac) (approximately 5,092 km^2 [1,966 mi^2]). The Plan Area includes all unincorporated Riverside County land west of the crest of the San Jacinto Mountains to the Orange County line as well as the jurisdictional areas of the cities of Temecula, Murrieta, Lake Elsinore, Canyon Lake, Norco, Corona, Riverside, Moreno Valley, Banning, Beaumont, Calimesa, Perris, Hemet, and San Jacinto. The plan will provide a coordinated reserve system and implementation that will facilitate the preservation of biological diversity as well as maintain the region's quality of life.

The project study corridor is located in the San Jacinto Mountains Bioregion, which is one of seven distinct bioregions identified for the MSHCP Area, and within the Tule Creek and Anza Valley, Subunit 4 area (County of Riverside 2002b).

A total of 142 species (83 animals and 59 plants) were considered to receive coverage under the Western Riverside County MSHCP. Of the 37 sensitive species observed or with a potential to occur within the project study corridor, 26 are addressed by the MSHCP (see Table 3.6-3). The following plan species within the Tule Creek and Anza Valley subunit were chosen for the upper San Jacinto and Bautista Creek area to provide reserve system design guidance:

- Quino checkerspot butterfly
- southwestern arroyo toad
- mountain yellow-legged frog
- San Bernardino kangaroo rat
- burrowing owl

Based on the MSHCP analysis, the following resource issues were identified for the Plan Area of the Bautista Canyon Road study corridor:

- Conservation of existing wetlands and wetlands functions and values in the Plan Area portion of the upper San Jacinto River, and Bautista, Tule, Temecula, Cottonwood, Wilson, Cahuilla, Tucalota, and Willow Canyon creeks with a focus on conserving existing habitats in the river and creeks.
- Conservation of stream courses and adjacent coastal sage scrub, grasslands, and chaparral supporting southwestern arroyo toad, with a focus on suitable breeding, foraging, and/or aestivating habitats along Temecula Creek, the upper San Jacinto River, and Bautista Canyon.
- Conservation of existing habitat values of the upper San Jacinto River and Bautista Creek for the benefit of San Bernardino kangaroo rat.
- Maintenance of regional habitat connection(s) from the SBNF to eastern Riverside County through coordination of conservation planning efforts with eastern Riverside County.

3.6.3 Thresholds of Significance

The project would result in a significant impact to the environment if it would:

- substantially reduce the habitat of a fish or wildlife species;
- cause a fish or wildlife population to drop below self-sustaining levels;
- threaten to eliminate a plant or animal community;
- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special species in local or regional plans, policies, or regulations, or by the CDFG or the USFWS;
- reduce the number or restrict the range of an endangered, rare, or threatened species;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFG or the USFWS;
- have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA;
- substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- conflict with the provisions of an adopted HCP, Natural Community Conservation Plan; or other approved local, regional, or state HCP.

3.6.4 Environmental Consequences

Effects to biological resources are assessed as direct or indirect and as permanent or temporary. Direct effects occur when biological resources are altered, disturbed, destroyed, or removed during the course of project construction and/or operation. Direct effects may result from activities such as removal, grading, or brushing of vegetation; felling trees; diverting or channelizing surface water flows; filling wetland habitat, and interfering with wildlife movement. Other direct effects may include the loss of individuals from habitat clearing and loss of foraging, nesting, or burrowing habitat for wildlife species. Indirect effects occur when project-related activities affect biological resources in the vicinity of the project, but not within the zone of direct impact. Potential indirect effects could include elevated noise levels, increased human presence, increased erosion and sedimentation in stream channels, alteration of stream drainage patterns, or changes in the amount and quality of surface water within floodplain areas occupied or supporting sensitive species. Both direct and indirect effects can be either temporary or permanent.

Direct permanent effects would occur in all areas where the reconstructed two-lane, paved Bautista Canyon Road is proposed. Because of engineering design constraints, the proposed alternative alignments stray from the current alignment of FH 224 in numerous locations, and direct permanent effects to plant communities and species habitat would occur. In addition, direct permanent effects to vegetation communities would occur in all areas of cut slopes steeper than 1:1.5 (V:H). Direct temporary effects would occur in all areas of fill slopes, cut slopes 1:1.5 (V:H) or flatter, and where temporary construction activities would impact plant communities or wildlife habitat. However, following reconstruction of Bautista Canyon Road, direct temporary impact areas would not have permanent facilities or structures and would be restored through planned restoration and revegetation actions.

The calculation of direct effects to vegetation communities and species habitat is based on the existing conditions information and on the preliminary engineering design for the alternative alignments provided by the FHWA. In general, direct permanent effects were calculated using an average 10 m (34 ft) wide corridor, which includes the road, shoulders, and roadside drainage. Other direct permanent effects include steep cut slopes, pullouts, and interpretive overlook areas. Direct temporary effects were calculated as all temporary effects associated with roadway construction (e.g., fill slopes, cut slopes flatter than 1:1.5 (V:H), construction access roads, and staging areas). Impact acreages were calculated using AMEC's geographic information system (GIS) data. Indirect permanent effects to surrounding biological resources from the potential increased use of Bautista Canyon Road may occur from implementation of the proposed project. Indirect temporary effects to surrounding biological resources may occur from temporary construction activities associated with the proposed project (e.g., temporarily higher noise levels and sedimentation of stream courses).

3.6.4.1 Alternative A

Botanical Resources

The construction of Alternative A would directly impact upland scrub, chaparral, and riparian vegetation communities. A total of 22.4 ha (55.4 ac) of direct impact would result from the implementation of the proposed project under Alternative A. This includes 13.5 ha (33.3 ac) of permanent roadway effects and 8.9 ha (22.1 ac) of temporary roadway effects (see Table 3.6-4). Of the total direct effects stated above, 14.6 ha (36.2 ac) are direct effects to plant communities, which includes 8.4 ha (20.8 ac) of permanent effects and 6.2 ha (15.4 ac) of temporary effects. For Alternative A, total new disturbance outside of the existing roadway would be 16.1 ha (39.8 ac)

Zoological Resources

Implementation of the proposed project under Alternative A would result in the direct loss of habitat for wildlife species known or potentially occurring in Bautista Canyon. Alternative A would result in a total impact of 7.8 ha (19.2 ac) to chaparral habitats, 0.6 ha (1.5 ac) to upland scrub habitat, and 0.05 ha (0.13 ac) to riparian habitat (Table 3.6-4). The effects of the project on sensitive wildlife species and wildlife movement are discussed below.

Apart from the direct impact to wildlife habitat, the projected higher traffic speed and volume could cause an increase in wildlife road kills on Bautista Canyon Road. The increased traffic speed and volume would occur along the entire corridor. Vehicle speeds and volumes are

Table 3.6-4
Direct Effects to Vegetation Communities and Jurisdictional Areas from the Three Alternative Alignments for the Bautista Canyon Road Project

Vegetation Community	Alternative A – 40 km/h (Permanent/ Temporary) (acres)	Alternative B – 55 km/h (Permanent/ Temporary) (acres)	Alternative C – 55/40/55 km/h (Permanent/ Temporary) (acres)
Upland Scrub	**1.5 / 2.3**	**1.5 / 2.4**	**1.5 / 2.8**
Big sagebrush scrub	1.1 / 1.7	1.1 / 1.7	1.1 / 1.8
Coastal sage-chaparral scrub	0.4 / 0.6	0.4 / 0.7	0.4 / 1.0
Chaparral	**19.2 / 12.1**	**21.7 / 14.1**	**19.2 / 12.1**
Southern mixed chaparral	16.9 / 8.9	18.6 / 10.5	16.6 / 8.6
Red shank chaparral	0.7 / 1.0	0.8 / 1.1	0.8 / 1.5
Bigberry manzanita chaparral	1.1 / 1.3	1.6 / 1.6	1.1 / 1.2
Chamise chaparral	0.5 / 0.9	0.7 / 0.9	0.7 / 0.8
Scrub oak chaparral	0.0 / 0.0	0.0 / 0.0	0.0 / 0.0
Upland Woodland	0.0 / 0.0	0.0 / 0.0	0.0 / 0.0
Southern coast live oak woodland	0.0 / 0.0	0.0 / 0.0	0.0 / 0.0
Riparian	**0.13 / 0.94**	**0.13 / 0.76**	**0.08 / 0.51**
Southern willow scrub	0.06 / 0.17	0.06 / 0.10	0.05 / 0.20
Southern cottonwood-willow riparian forest	0.07 / 0.77	0.07 / 0.66	0.02 / 0.31
White alder-live oak riparian forest	0.0 / 0.0	0.0 / 0.0	0.0 / 0.0
Open cottonwood-willow riparian forest	0.0 / 0.0	0.0 / 0.0	0.0 / 0.0
Ruderal/Disturbed	**0.0 / 0.0**	**0.0 / 0.0**	**0.0 / 0.0**
Plant Community Subtotal*	20.8 / 15.4	23.3 / 17.3	20.8 / 15.5
Overall Plant Community Subtotal*	***36.2 (14.6 ha)***	***40.6 (16.4 ha)***	***36.3 (14.7 ha)***
Existing Dirt Road-No Vegetation	12.5 / 6.7	10.8 / 5.7	11.8 / 7.0
Total*	33.3 / 22.1	34.1 / 23.0	32.6 / 22.5
Overall Impact Total*	***55.4 (22.4 ha)***	***57.1 (23.1 ha)***	***55.1 (22.3 ha)***
USACE Jurisdictional Wetlands	0.33 / 0.32	0.18 / 0.11	0.32 / 0.17
USACE Jurisdictional Non-wetland Waters of the U.S.	0.32 / 0.10	0.38 / 0.09	0.35 / 0.09
USACE Jurisdictional Impact Total*	**0.65 (0.26 ha)**	**0.54 (0.22 ha)**	**0.67 (0.27 ha)**

Note:
Steep slopes (steeper than 1.1.5 slopes) from drainage 13 to drainage 32 are considered permanent impacts due to revegetation constraints.

* Totals may not sum due to rounding.
ha – hectares
km/h – kilometers per hour

projected to increase moderately above the current levels. At the northern terminus (east of Fairview Avenue), traffic volumes are estimated to increase from the current level of 346 vehicles per day to 600 vehicles per day in 2006. Total volumes are projected to increase to 1,790 per day in 2025. Riverside County staff has estimated that paving Bautista Canyon Road would increase the average traffic speed along the reconstructed segment to approximately 53 km/h (33 mph). Traffic patterns (i.e., nighttime versus daytime) will factor into the level of effect on different species. Additionally, wildlife species have differing abilities to avoid oncoming vehicles; thus, it is difficult to generalize the effect on wildlife. Measures to avoid and minimize wildlife mortality have been incorporated into the proposed project and are discussed in Section 3.6.5. The effect of traffic on sensitive species is addressed further below.

Other potential effects of the roadway improvements on wildlife include behavioral modification (e.g., roadway aversion), habitat fragmentation and population isolation, pollution, habitat modification through exotic plant introductions, and hydrology modifications. Many of these effects exist with the current roadway, and the roadway improvements are not expected to significantly increase these effects. Habitat connectivity and wildlife movement are discussed further below.

Regulated Waterways, Wetlands, and Riparian Areas

Alternative A would impact a total of 0.13 ha (0.32 ac) of USACE jurisdictional non-wetland waters of the U.S. and a total of 0.13 ha (0.33 ac) of USACE jurisdictional wetlands (see Table 3.6-4). Total impact to jurisdictional waters and wetlands would be approximately 0.26 ha (0.65 ac). Alternative A would impact a total of 0.38 ha (0.94 ac) of CDFG jurisdictional riparian habitat and waterways. Habitat compensation measures to mitigate unavoidable effects to jurisdictional areas are discussed in Section 3.6.5.

Sensitive Species

Sensitive Plants. Direct effects to chaparral sand verbena are expected from implementation of the proposed project. This effect is considered less than significant because the level of impact is relatively low and the species is not federal or state listed. All other sensitive or listed plant species have a very low to moderate probability of occurring in the study corridor. For those plant species with a moderate probability of occurring in the study corridor, the project will have a less than significant impact on potential habitat. For those plant species with a very low to low probability of occurring in the study corridor, the project will have no effect on the species. Habitat compensation measures have been included in the project to mitigate the loss of potential habitat for these species, and these measures are included in Section 3.6.5. All sensitive plant species assessed are listed in Table 3.6-5.

The federally endangered slender-spineflower has a moderate probability of occurring in the study corridor, but species-specific surveys did not locate the species. The federally endangered Santa Ana River woolly-star has a very low probability of occurring in the vicinity of the study corridor and will not be affected by the project.

Table 3.6-5
Effects and Mitigation Measures for Sensitive Species in the Bautista Canyon Road Project Study Corridor

Species	Status	Occurrence Probability	Potential Impact	Proposed Conservation Actions	Effect on Species
Plants					
Abronia villosa var. *aurita* **Chaparral Sand Verbena**	USDAFS Proposed Sensitive	Observed	• Direct impacts to existing populations Direct impacts to potential (shrubland) habitat: Alt. A – 35.1 ac (14.2 ha) Alt. B – 39.7 ac (16.1 ha) Alt. C – 35.6 ac (14.4 ha)	Restoration and revegetation of upland cut/fill slopes and abandoned roadway segments.	Less than significant
Berberis nevinii **Nevins Barberry**	USFWS Endangered USDAFS Sensitive	Not Observed; Moderate	Direct impacts to potential (shrubland) habitat: Alt. A – 35.1 ac (14.2 ha) Alt. B – 39.7 ac (16.1 ha) Alt. C – 35.6 ac (14.4 ha)	Restoration and revegetation of upland cut/fill slopes and abandoned roadway segments.	Less than significant
Brodiaea filifolia **Thread-leaved Brodaea**	USFWS Threatened USDAFS Sensitive	Not Observed; Low	Not likely to occur and no potential impacts anticipated.	No additional conservation measures are proposed for this species.	No effect
Calochortus palmeri var. *munzii* **Munz's Mariposa Lily**	USDAFS Sensitive	Not Observed; Low	Not likely to occur and no potential impacts anticipated.	No additional conservation measures are proposed for this species.	No effect
Calochortus plummerae **Plummer's Mariposa Lily**	USDAFS Sensitive	Not Observed; Moderate	Direct impacts to potential (shrubland) habitat: Alt. A – 35.1 ac (14.2 ha) Alt. B – 39.7 ac (16.1 ha) Alt. C – 35.6 ac (14.4 ha)	Restoration and revegetation of upland cut/fill slopes and abandoned roadway segments.	Less than significant
Caulanthus simulans **Payson's Jewel-flower**	USDAFS Sensitive	Not Observed; Moderate	Direct impacts to potential (shrubland) habitat: Alt. A – 35.1 ac (14.2 ha) Alt. B – 39.7 ac (16.1 ha) Alt. C – 35.6 ac (14.4 ha)	Restoration and revegetation of upland cut/fill slopes and abandoned roadway segments.	Less than significant
Chaenactis parishii **Parish's Chaenactis**	USDAFS Watch List	Not Observed; Low	Not likely to occur and no potential impacts anticipated.	No additional conservation measures are proposed for this species.	No effect
Deinandra mohavensis **Mojave Tarplant**	USDAFS Sensitive	Not Observed; Moderate	Direct impacts to potential (riparian) habitat: Alt. A – 1.1 ac (0.4 ha) Alt. B – 0.9 ac (0.4 ha) Alt. C – 0.7 ac (0.3 ha)	Creation, restoration, and/or enhancement of impacts to jurisdictional wetlands.	Less than significant

Table 3.6-5 (continued)
Effects and Mitigation Measures for Sensitive Species in the Bautista Canyon Road Project Study Corridor

Species	Status	Occurrence Probability	Potential Impact	Proposed Conservation Actions	Effect on Species
Plants (continued)					
Dodecahema leptoceras **Slender-horned Spineflower**	USFWS Endangered	Not Observed; Moderate	Direct impacts to potential (riparian) habitat: Alt. A – 1.1 ac (0.4 ha) Alt. B – 0.9 ac (0.4 ha) Alt. C – 0.7 ac (0.3 ha)	Creation, restoration, and/or enhancement of impacts to jurisdictional wetlands; Preconstruction surveys; Best Management Practices for erosion and sedimentation control.	Less than significant There may be indirect impacts to the known occurrence of this plant due to increased visitors and fire starts
Eriastrum densifolium ssp. *Sanctorum* **Santa Ana River Woolly-star**	USFWS Endangered	Not Observed; Very low	Not likely to occur and no potential impacts anticipated.	No additional conservation measures are proposed for this species.	No effect
Galium californicum ssp. *Primum* **California Bedstraw**	USDAFS Sensitive	Not Observed; Very low	Not likely to occur and no potential impacts anticipated.	No additional conservation measures are proposed for this species.	No effect
Monardella macrantha ssp. *Hallii* **Hall's Monardella**	USDAFS Sensitive	Not Observed; Low	Not likely to occur and no potential impacts anticipated.	No additional conservation measures are proposed for this species.	No effect
Penstemon californicus **California Beardtongue**	USDAFS Sensitive	Not Observed; Low	Not likely to occur and no potential impacts anticipated.	No additional conservation measures are proposed for this species.	No effect
Poa atropurpurea **Bear Valley Blue-grass**	USFWS Endangered	Not Observed; Very low	Not likely to occur and no potential impacts anticipated.	No additional conservation measures are proposed for this species.	No effect
Scutellaria bolanderi ssp. *Austromontana* **Southern Skullcap**	USDAFS Sensitive	Not Observed; Low	Not likely to occur and no potential impacts anticipated.	No additional conservation measures are proposed for this species.	No effect
Streptanthus campestris **Southern Jewel-flower**	USDAFS Sensitive	Not Observed; Moderate	Direct impacts to potential (chaparral) habitat: Alt. A – 31.3 ac (12.7 ha) Alt. B – 35.8 ac (14.5 ha) Alt. C – 31.3 ac (12.7 ha)	Restoration and revegetation of upland cut/fill slopes and abandoned roadway segments.	Less than significant

Table 3.6-5 (continued)
Effects and Mitigation Measures for Sensitive Species in the Bautista Canyon Road Project Study Corridor

Species	Status	Occurrence Probability	Potential Impact	Proposed Conservation Actions	Effect on Species
Invertebrates					
Quino Checkerspot Butterfly *Euphydryas editha quino*	USFWS Endangered	Occurs	Direct impacts to occupied foraging habitat (vegetated areas within 1,000 of nearest point): Alt. A – 1.4 ac (0.6 ha) Alt. B – 1.4 ac (0.6 ha) Alt. C – 1.3 ac (0.5 ha) Direct impacts to potential suitable habitat in study corridor (vegetated): Alt. A – 9.6 ac (3.9 ha) Alt. B – 10.3 ac (4.2 ha) Alt. C – 10.3 ac (4.2 ha)	Reduced impact corridor width in the vicinity of the local colony; Restoring and revegetation of upland cut/fill slopes and abandoned roadway segments; Fencing around suitable habitat in vicinity of known local colony to keep construction equipment/personnel from inadvertently damaging the habitat.	Mitigated below a level of significance
Amphibians and Reptiles					
Silvery Legless Lizard *Anniella pulchra pulchra*	USDAFS Sensitive	Not Observed; High	Direct impacts to potential habitat (all types): Alt. A – 35.1 ac (14.2 ha) Alt. B – 39.7 ac (16.1 ha) Alt. C – 35.6 ac (14.4 ha)	Restoration and revegetation of upland cut/fill slopes and abandoned roadway segments.	Less than significant
Arroyo Toad *Bufo californicus*	USFWS Endangered	Occurs	Direct impacts to occupied upland habitat (vegetated): Alt. A – 5.7 ac (2.3 ha) Alt. B – 5.9 ac (2.4 ha) Alt. C – 6.5 ac (2.6 ha) Direct impacts to Critical Habitat (vegetated): Alt. A – 8.7 ac (3.5 ha) Alt. B – 9.1 ac (3.7 ha) Alt. C – 9.6 ac (3.9 ha) Indirect impacts from increased traffic volumes and speeds. Beneficial impacts on water quality.	Avoid construction during breeding season in the northern 1.5 miles; Implement toad exclusion and barrier system programs; Restoration and revegetation of cut/fill slopes and abandoned roadway segments; Creation, restoration, and/or enhancement of effects to jurisdictional wetlands; Best Management Practices to maintain water quality.	Mitigated below a level of significance
Rosy Boa *Charina [Lichanura] trivirgata*	USDAFS Sensitive	Not Observed; High	Direct effects to potential shrubland habitat: Alt. A – 35.1 ac (14.2 ha) Alt. B – 39.7 ac (16.1 ha) Alt. C – 35.6 ac (14.4 ha)	Restoration and revegetation of upland cut/fill slopes and abandoned roadway segments.	Less than significant

Table 3.6-5 (continued)
Effects and Mitigation Measures for Sensitive Species in the Bautista Canyon Road Project Study Corridor

Species	Status	Occurrence Probability	Potential Impact	Proposed Conservation Actions	Effect on Species
Amphibians and Reptiles (continued)					
Ring-neck Snake *Diadophis punctatus*	USDAFS Sensitive	Not Observed; Moderate	Direct effects to potential chaparral habitat: Alt. A – 31.3 ac (12.7 ha) Alt. B – 35.8 ac (14.5 ha) Alt. C – 31.3 ac (12.7 ha)	Restoration and revegetation of upland cut/fill slopes and abandoned roadway segments.	Less than significant
Large-blotched Ensatina *Ensatina eschscholtzii klauberi*	USDAFS Sensitive	Not Observed; High	Direct effects to potential shrubland habitat: Alt. A – 35.1 ac (14.2 ha) Alt. B – 39.7 ac (16.1 ha) Alt. C – 35.6 ac (14.4 ha)	Restoration and revegetation of upland cut/fill slopes and abandoned roadway segments.	Less than significant
San Bernardino Mountain Kingsnake *Lampropeltis zonata parvirubra*	USDAFS Sensitive	Not Observed; High	Direct effects to potential chaparral habitat: Alt. A – 31.3 ac (12.7 ha) Alt. B – 35.8 ac (14.5 ha) Alt. C – 31.3 ac (12.7 ha)	Restoration and revegetation of upland cut/fill slopes and abandoned roadway segments.	Less than significant
San Diego Horned Lizard *Phrynosoma coronatum blainvillii*	USDAFS Sensitive	Occurs	Direct effects to upland habitats (all): Alt. A – 35.1 ac (14.2 ha) Alt. B – 39.7 ac (16.1 ha) Alt. C – 35.6 ac (14.4 ha)	Restoration and revegetation of upland cut/fill slopes and abandoned roadway segments.	Mitigated below a level of significance
Mountain Yellow-legged Frog *Rana mucosa*	USFWS Endangered USDAFS Sensitive	Not Observed; Low	Not likely to occur and no potential impacts anticipated.	No additional conservation measures are proposed for this species.	No effect
Two-striped Garter Snake *Thamnophis hammondii*	USDAFS Sensitive	Occurs	Direct effects to occupied riparian habitat: Alt. A – 1.1 ac (0.4 ha) Alt. B – 0.9 ac (0.4 ha) Alt. C – 0.7 ac (0.3 ha) Beneficial impact on water quality.	Creation, restoration, and/or enhancement of effects to jurisdictional wetlands; Best Management Practices to maintain water quality.	Mitigated below a level of significance
Birds					
Cooper's Hawk *Accipiter cooperii*	USDAFS Sensitive	Occurs	Direct effects to occupied riparian habitat: Alt. A – 1.1 ac (0.4 ha) Alt. B – 0.9 ac (0.4 ha) Alt. C – 0.7 ac (0.3 ha)	Creation, restoration, and/or enhancement of effects to jurisdictional wetlands; Preconstruction nest surveys.	Mitigated below a level of significance

Table 3.6-5 (continued)
Effects and Mitigation Measures for Sensitive Species in the Bautista Canyon Road Project Study Corridor

Species	Status	Occurrence Probability	Potential Impact	Proposed Conservation Actions	Effect on Species
Birds (continued)					
Northern Goshawk *Accipiter gentiles*	USDAFS Sensitive	Not Observed; Moderate	No potential impacts anticipated.	No additional conservation measures are proposed for this species.	No effect
Sharp-shinned Hawk *Accipiter striatus*	USDAFS Sensitive	Occurs	Direct effects to upland foraging habitats (all): Alt. A – 35.1 ac (14.2 ha) Alt. B – 39.7 ac (16.1 ha) Alt. C – 35.6 ac (14.4 ha)	Restoration and revegetation of upland cut/fill slopes and abandoned roadway segments; Preconstruction nest surveys.	Mitigated below a level of significance
Golden Eagle *Aquila chrysaetos*	USDAFS Sensitive	Not Observed; Moderate	No potential impacts anticipated.	No additional conservation measures are proposed for this species.	No effect
Cactus Wren *Campylorhynchus brunneicapillus cousei*	USDAFS Sensitive	Not Observed; Low	Not likely to occur and no potential effects anticipated.	No additional conservation measures are proposed for this species.	No effect
Turkey Vulture *Cathartes aura*	USDAFS Sensitive	Occurs	Direct impacts to upland foraging habitat (all types): Alt. A – 35.1 ac (14.2 ha) Alt. B – 39.7 ac (16.1 ha) Alt. C – 35.6 ac (14.4 ha)	Restoration and revegetation of upland cut/fill slopes and abandoned roadway segments; Preconstruction nest surveys.	Less than significant
Swainson's Thrush *Catharus ustulatus*	USDAFS Sensitive	Not Observed; Moderate	Direct effects to potential riparian habitat: Alt. A – 1.1 ac (0.4 ha) Alt. B – 0.9 ac (0.4 ha) Alt. C – 0.7 ac (0.3 ha)	Creation, restoration, and/or enhancement of effects to jurisdictional wetlands.	Less than significant
Black Swift *Cypseloides niger*	USDAFS Sensitive	Not Observed; Moderate	Direct effects to potential riparian habitat: Alt. A – 1.1 ac (0.4 ha) Alt. B – 0.9 ac (0.4 ha) Alt. C – 0.7 ac (0.3 ha)	Creation, restoration, and/or enhancement of effects to jurisdictional wetlands.	Less than significant
Yellow Warbler *Dendroica petechia brewsteri*	USDAFS Sensitive	Occurs	Direct effects to occupied riparian habitat: Alt. A – 1.1 ac (0.4 ha) Alt. B – 0.9 ac (0.4 ha) Alt. C – 0.7 ac (0.3 ha)	Creation, restoration, and/or enhancement of effects to jurisdictional wetlands.	Mitigated below a level of significance

Table 3.6-5 (continued)
Effects and Mitigation Measures for Sensitive Species in the Bautista Canyon Road Project Study Corridor

Species	Status	Occurrence Probability	Potential Impact	Proposed Conservation Actions	Effect on Species
Birds (continued)					
Southwestern Willow Flycatcher *Empidonax traillii extimus*	USFWS Endangered	Occurs	Direct effects to occupied riparian habitat: Alt. A – 1.1 ac (0.4 ha) Alt. B – 0.9 ac (0.4 ha) Alt. C – 0.7 ac (0.3 ha)	Restricted construction activities during breeding season.	Mitigated below a level of significance
Prairie Falcon *Falco mexicanus*	USDAFS Sensitive	Not Observed; Moderate	Direct effects to potential shrubland foraging habitat: Alt. A – 35.1 ac (14.2 ha) Alt. B – 39.7 ac (16.1 ha) Alt. C – 35.6 ac (14.4 ha)	Restoration and revegetation of upland cut/fill slopes and abandoned roadway segments; Preconstruction nest surveys.	Less than significant
American Peregrine Falcon *Falco peregrinus anatum*	USDAFS Sensitive	Not Observed; Low	Not likely to occur and no potential effects anticipated.	No additional conservation measures are proposed for this species.	No effect
Purple Martin *Progne subis*	USDAFS Sensitive	Occurs	Direct impact to upland foraging habitat (all types): Alt. A – 35.1 ac (14.2 ha) Alt. B – 39.7 ac (16.1 ha) Alt. C – 35.6 ac (14.4 ha)	Restoration and revegetation of upland cut/fill slopes and abandoned roadway segments; Preconstruction nest surveys.	Mitigated below a level of significance
Coastal California Gnatcatcher *Polioptila californica californica*	USFWS Threatened	Absent	Not likely to occur and no potential effects anticipated.	No additional conservation measures are proposed for this species.	No effect
Least Bell's Vireo *Vireo bellii pusillus*	USFWS Endangered	Absent	Not likely to occur and no potential effects anticipated.	No additional conservation measures are proposed for this species.	No effect
Gray Vireo *Vireo vicinior*	USDAFS Sensitive	Not Observed; Moderate	Direct effects to potential shrubland foraging habitat: Alt. A – 35.1 ac (14.2 ha) Alt. B – 39.7 ac (16.1 ha) Alt. C – 35.6 ac (14.4 ha)	Restoration and revegetation of upland cut/fill slopes and abandoned roadway segments.	Less than significant
Wilson's Warbler *Wilsonia pusilla*	USDAFS Sensitive	Occurs	Direct effects to occupied riparian habitat: Alt. A – 1.1 ac (0.4 ha) Alt. B – 0.9 ac (0.4 ha) Alt. C – 0.7 ac (0.3 ha)	Creation, restoration, and/or enhancement of effects to jurisdictional wetlands.	Mitigated below a level of significance

Table 3.6-5 (continued)
Effects and Mitigation Measures for Sensitive Species in the Bautista Canyon Road Project Study Corridor

Species	Status	Occurrence Probability	Potential Impact	Proposed Conservation Actions	Effect on Species
Mammals					
Pallid Bat *Antrozous pallidus*	USDAFS Sensitive	Not Observed; Moderate	Direct impact to potential upland foraging habitat (all types): Alt. A – 35.1 ac (14.2 ha) Alt. B – 39.7 ac (16.1 ha) Alt. C – 35.6 ac (14.4 ha)	Restoration and revegetation of upland cut/fill slopes and abandoned roadway segments.	Less than significant
Western Big-eared Bat *Corynorhinus townsendii townsendii*	USDAFS Sensitive	Not Observed; Moderate	Direct impact to upland potential foraging habitat (all types): Alt. A – 35.1 ac (14.2 ha) Alt. B – 39.7 ac (16.1 ha) Alt. C – 35.6 ac (14.4 ha)	Restoration and revegetation of upland cut/fill slopes and abandoned roadway segments.	Less than significant
San Bernardino Kangaroo Rat *Dipodomys merriami parvus*	USFWS Endangered	Absent	Not likely to occur within the study corridor. Potential indirect off-site effects.	Best Management Practices for erosion and sedimentation control.	Mitigated below a level of significance
Mountain Lion *Puma concolor*	USDAFS Sensitive	Occurs	Direct impact to occupied habitat (all types): Alt. A – 36.2 ac (14.6 ha) Alt. B – 40.6 ac (16.4 ha) Alt. C – 36.3 ac (14.7 ha) Indirect wildlife corridor effects.	Restoration and revegetation of upland cut/fill slopes and abandoned roadway segments.	Mitigated below a level of significance
American Badger *Taxidea taxus*	USDAFS Sensitive	Not Observed; Low	Not likely to occur and no potential effects anticipated.	Restoration and revegetation of upland cut/fill slopes and abandoned roadway segments.	No effect

Quino Checkerspot Butterfly. The approximate location of the observed local colony of the species is 304.8 m (1,000 ft) west of the existing Bautista Canyon Road. Minimal vegetation disturbance will occur from roadway reconstruction in the vicinity of the Quino checkerspot locality. The impact corridor is substantially narrower in this section of the roadway than in the remainder of the project. Most of the impact acreage in this section of the project would occur within the existing dirt road.

For the Quino checkerspot butterfly, Alternative A would result in direct effects to 0.6 ha (1.4 ac) of occupied foraging habitat (vegetated) and 3.9 ha (9.6 ac) of potential suitable habitat within the study corridor (vegetated). Although suitable habitat exists throughout the corridor, colonies tend to occupy relatively localized areas, and the species was only found at the Anza colony during 2001 focused surveys. The direct loss of unoccupied suitable habitat is considered less than significant because the species was not detected in these areas. The direct impact to occupied foraging habitat for this species is considered significant but would be mitigated below a level of significance through the general habitat compensation measures outlined in Section 3.6.5.

The loss of unoccupied suitable habitat would not affect the species. The project study area is not included in the final designated Critical Habitat and the proposed project would have no effect on Critical Habitat for the species.

Arroyo Toad. As described in Section 3.6.1, a single adult arroyo toad was observed immediately adjacent to the study corridor about 213 m (700 ft) upstream of the main road into the CDC Bautista Conservation Camp. Although the sighting was not within the defined study corridor for the project, the species is considered present in this reach of Bautista Creek and in the upland habitat surrounding the point location, which occurs within the study corridor. Based on historical records, physical and biological habitat characteristics, and 2001 focused protocol surveys for the species, the current range of the species in Bautista Creek is believed to extend no farther upstream than the sighting in the vicinity of the Conservation Camp.

In the vicinity of the arroyo toad sighting, no direct effects to or crossings of Bautista Creek are proposed. Direct effects to upland vegetation communities used by the species and potential impacts to buried and foraging individuals in and around the Conservation Camp sighting would occur. Riparian and upland habitat potentially used by the species in the vicinity of this sighting was considered occupied habitat. Direct effects to 2.3 ha (5.7 ac) of occupied upland habitat would result from implementation of Alternative A (see Table 3.6-5). This unavoidable impact to upland habitat is considered significant. Approximately 3.5 ha (8.7 ac) of the previously designated Critical Habitat for the arroyo toad would be affected by Alternative A. The impact to previously designated Critical Habitat is considered less than significant because the upstream portions of this area are not occupied by the species and because the Critical Habitat designation is no longer in place. The direct loss of suitable upland habitat would be mitigated through the habitat compensation measures. These measures are discussed further in Section 3.6.5.

Expected traffic and increased vehicle speeds along Bautista Canyon Road would result in indirect effects to the arroyo toad. Although a current barrier to migration, dispersal, and recolonization exists with the current roadway, the increase in traffic volume and speed from the project would contribute to habitat fragmentation by exacerbating the barrier effect. The exacerbation of the movement barrier effect would extend beyond the roadway improvement section, in both the northern and southern segments, as vehicle volumes and speed are projected to increase along the entire roadway. In the vicinity of the known arroyo toad sighting adjacent to the study corridor, the roadway is located away from Bautista Creek and at the edge of the upland habitat potentially used by the species. The toad is not considered to occupy Bautista Creek upstream of this location. Within the study corridor, the project would not likely have a significant impact on toad movement or habitat accessibility. Downstream of the study corridor where toads are known to occur in the vicinity of Hixon Trail, the existing roadway is at the outer edge of the Bautista Creek floodplain terrace, and is bounded on the uphill edge by a steep rock hill slope. Exacerbation of the movement barrier in the vicinity of Hixon Trail is not expected to result in a significant impact to toad movement or habitat accessibility. Habitat connectivity and wildlife movement are discussed further below.

Increased traffic volume and speed could also increase toad roadway mortality. Arroyo toads are active primarily at night and spend most of their adult life in uplands adjacent to stream channels. Activity also increases during rainy weather. The area upstream of the CDC Bautista Conservation Camp is not considered occupied by the species. In the vicinity of the Conservation Camp point locality, toad mortality may increase over the current levels, but estimating mortality with small population sizes is speculative and inaccurate. The effect of increased mortality within the study corridor is considered significant due to the endangered status of the species, but the increase in mortality is expected to be low within the study corridor because of the habitat characteristics and population status in this area of the canyon. Measures to reduce this impact to below a level of significance are discussed in Section 3.6.5.

Toad mortality due to an increase in traffic speed and volume in the vicinity of Hixon Trail is considered to be a significant impact to this species. U.S. Geological Survey (USGS) surveys for arroyo toad at Hixon Trail observed 15 individuals in this vicinity, which is approximately 3.2 km (2 mi) north of the northern terminus of the study corridor. On several occasions, arroyo toads were observed sitting on Bautista Canyon Road at this location. Measures to reduce the off-site impacts to the species below a level of significance are discussed in Section 3.6.5.

The northernmost 2.4 km (1.5 mi) of the study corridor was previously designated as Critical Habitat for the species. Approximately 3.5 ha (8.7 ac) of upland acreage would be impacted within the previously designated Critical Habitat, of which approximately 3.5 ha (8.7 ac) is natural vegetation. A substantial portion of the impact within the previously designated Critical Habitat occurs in unoccupied habitat. Most of the habitat in the upstream sections of Bautista Canyon does not appear suitable for the species. The effect of the proposed project on the previously designated Critical Habitat for the species is considered adverse but less than significant because a majority of this area is considered unoccupied and because the critical habitat designation is no longer in place.

Beneficial effects of the proposed project on arroyo toad primarily include improvements to water quality in Bautista Canyon. All low-water crossings of Bautista Canyon Creek and its tributaries would be upgraded to culverts. The main crossing of the creek would be a bridge. Erosion and sedimentation off the existing dirt segment of Bautista Canyon Road would be reduced with the paving of the roadway. Improvements to roadside drainage are also proposed. These components of the project would reduce the sediment load during winter flows in the creek and potentially improve habitat quality for the species in downstream sections of the creek.

Southwestern Willow Flycatcher. This species was observed nesting within the study corridor in riparian habitat adjacent to the existing roadway downstream from Tripp Flats Road. The proposed project would result in the relocation of the road farther away from the nest location. No direct effects to riparian vegetation communities would occur in the immediate vicinity of the southwestern willow flycatcher point location as the roadway is being relocated outside the floodplain and out of the riparian corridor. Direct effects to suitable riparian habitat from the project are considered significant and would include 0.4 ha (1.1 ac) under Alternative A. The significance determination is based on the finding that the project would modify the habitat of a species regulated by CDFG/USFWS and could result in a reduction in the number of endangered species. While significant, the impact is mitigable. Unavoidable effects to riparian habitat would be mitigated through the CWA Section 404 permit process with wetland creation, restoration, and/or enhancement. Habitat compensation and other specific measures to reduce the project's effects on this species are discussed in Section 3.6.5. The Wetland Mitigation Memorandum is provided in Volume II, Appendix H.

Indirect effects to the species from the project would include temporary construction noise and permanently increased traffic noise. Construction activities that would result in excessive noise (e.g., rock blasting) in the vicinity of this breeding territory would be limited to the period outside the breeding season (breeding season is considered from 15 March to 31 August). Permanently increased traffic noise in the vicinity of this breeding territory is offset by the relocation of the roadway away from the Bautista Canyon riparian habitat. The project would relocate the roadway centerline 72 m (236 ft) away from the species point location. Indirect noise effects to an occupied breeding territory are mitigated below a level of significance by these measures. Relocation of the road away from the nesting habitat would be considered a beneficial effect because it would also decrease human accessibility to the riparian habitat.

Other Sensitive Wildlife Species. Direct effects to other sensitive wildlife species are expected from implementation of this project, and these effects are summarized in Table 3.6-5. Impacts to sensitive species will include direct loss of suitable habitat and direct mortality. These impacts are considered less than significant or are considered mitigated below a level of significance (see Table 3.6-5). Increased traffic speed and volume on the roadway will increase road kill as discussed under the Zoological Resources section. Other potential effects of the roadway improvement on sensitive wildlife species are similar to the effects to general wildlife and include behavioral modification (e.g., roadway aversion), habitat fragmentation and population isolation, pollution, habitat modification through exotic plant introductions, and hydrology modifications. Habitat compensation and other measures for sensitive wildlife species are discussed in Section 3.6.5.

The mountain yellow-legged frog is considered to have a low probability of occurring in the study corridor because the characteristics of Bautista Canyon in the study corridor do not meet the strict habitat requirements of this species. The project would have no effect on this species. Species-specific surveys for the least Bell's vireo did not detect the species and the study corridor is considered unoccupied. There would be no effect on least Bell's vireo from the proposed project. The American peregrine falcon has a low probability of occurring in the canyon, and there would be no effect on this species from the proposed project. Species-specific surveys for the coastal California gnatcatcher did not detect the species and the study corridor is considered unoccupied. There would be no effect on coastal California gnatcatcher from the project. Species-specific surveys for the San Bernardino kangaroo rat did not detect the species and the study corridor is considered unoccupied. Recent surveys in more suitable habitat off-site near Hixon Trail did detect the species. The off-site effects of the project on San Bernardino kangaroo rat are considered below a level of significance. Additionally, general measures to maintain water quality during construction would avoid downstream disturbance to this species.

<u>Habitat Connectivity and Wildlife Movement</u>

The proposed project would not significantly increase habitat fragmentation in Bautista Canyon or within Bautista Creek. The existing Bautista Canyon Road acts as a barrier to movement for some wildlife species; however, the low traffic speed and volume of the current roadway likely allow substantial wildlife movement. The proposed project would widen the roadway and increase traffic speed and volume. The increased traffic speed and volume would occur both in the improved roadway segment and in the existing, unimproved segments of Bautista Canyon Road to the north and south. While, this roadway improvement project has the potential to affect wildlife movement in the canyon, the effects would vary by species and are difficult to quantify. Observations by project biologists indicate that snakes seem to have the highest traffic-related mortality, being long, slow, and lingering on warm and paved surfaces. More pavement will likely lead to more road kill for reptiles. To minimize the effect of roadway improvement on wildlife movement, the right-of-way corridor width has been minimized, a bridge has been designed for the main crossing of Bautista Creek, and an oversized box culvert has been designed for Tripp Flats. These and other measures have been included in the project design to reduce the effects on wildlife movement below a level of significance (see Section 3.6.5).

<u>Regional Resource Management Programs</u>

Alternative A is consistent with the goals, resource issues, and design guidance identified in the MSHCP for the Tule Creek and Anza Valley, Subunit 4 areas. Target species, such as the Quino checkerspot butterfly and the southwestern arroyo toad that were observed within the study corridor, would be adversely affected with the implementation of Alternative A, and conservation, mitigation, and habitat compensation measures have been integrated into the proposed project to reduce effects to below a level of significance.

Preservation of Bautista Creek would be maintained by siting the alignment of the roadway to avoid existing significant biological and cultural resources. A bridge is proposed over Bautista Creek, which would avoid significant effects to existing riparian habitat and would maintain regional connectivity of Bautista Creek and Bautista Canyon. Effects to other sensitive species and sensitive habitats would be mitigated to below a level of significance through habitat creation, restoration, and/or enhancement as described in Section 3.6.5.

3.6.4.2 Alternative B

Botanical Resources

The construction of Alternative B would directly impact upland scrub, chaparral, and riparian vegetation communities associated with Bautista Canyon. A total of 23.1 ha (57.1 ac) of direct impact would result from the implementation of the proposed project under Alternative B, which includes 13.8 ha (34.1 ac) of permanent roadway effects and 9.3 ha (23.0 ac) of temporary roadway effects (see Table 3.6-4). Of the total direct effects stated above, 16.4 ha (40.6 ac) are direct effects to plant communities, which include 9.4 ha (23.3 ac) of permanent effects and 7.0 ha (17.3 ac) of temporary effects. For Alternative B, total new disturbance outside of the existing roadway would be 17.9 ha (44.2 ac). The effects to sensitive plant species are similar to the effects under Alternative A and are discussed under the Sensitive Species section below.

Zoological Resources

The project under Alternative B would result in the direct loss of habitat for wildlife species known or potentially occurring in Bautista Canyon. Alternative B would result in a total impact of 8.8 ha (21.7 ac) to chaparral habitats, 0.6 ha (1.5 ac) to upland scrub habitat, and 0.05 ha (0.13 ac) to riparian habitat.

All other effects of the proposed project under Alternative B would be the same as those discussed under Alternative A (Section 3.6.4.1). The effects of the project on sensitive wildlife species and wildlife movement are discussed below.

Regulated Waterways, Wetlands, and Riparian Areas

Alternative B would impact a total of 0.15 ha (0.38 ac) of USACE jurisdictional non-wetland waters of the U.S. and a total of 0.07 ha (0.18 ac) of USACE jurisdictional wetlands (see Table 3.6-4). Total impact to jurisdictional waters and wetlands would be approximately 0.22 ha (0.54 ac). Alternative B would impact a total of 0.31 ha (0.76 ac) of CDFG jurisdictional riparian habitat and unvegetated CDFG jurisdictional waterways.

Sensitive Species

The effects of the proposed project under Alternative B on sensitive plant species are similar to the effects under Alternative A. Table 3.6-5 lists the effects from the project under Alternative B to potential habitat for sensitive plant species.

Effects to sensitive wildlife species are similar to those under Alternative A, except for the number of acres of impact to the habitat of the southwestern willow flycatcher, Quino checkerspot butterfly, arroyo toad, and other sensitive species, as shown in Table 3.6-5.

Alternative B would result in direct effects to 0.6 ha (1.4 ac) of habitat (vegetated) in the vicinity of the observed Quino checkerspot butterfly colony and 4.2 ha (10.3 ac) of potential suitable habitat within the study corridor (vegetated) of the Quino checkerspot butterfly. For the arroyo toad, direct effects to 2.4 ha (5.9 ac) of occupied upland habitat and 3.7 ha (9.1 ac) of vegetated habitat previously designated as Critical Habitat for the arroyo toad would result from the implementation of Alternative B (see Table 3.6-4). For the southwestern willow flycatcher, direct effects to occupied riparian habitat from the proposed project would include 0.4 ha (0.9 ac) under Alternative B. The project would relocate the roadway centerline 89.1 m (292 ft) away from the southwestern willow flycatcher species point location.

Habitat Connectivity and Wildlife Movement

Alternative B does not differ in its effects to habitat connectivity or wildlife movement from Alternative A. See Section 3.6.4 for a discussion of these effects. Measures to reduce the effects have been included in the project design and are discussed in Section 3.6.5.

Regional Resource Management Programs

Similar to the discussion provided for Alternative A, Alternative B is consistent with the goals, resource issues, and design guidance identified in the MSHCP for the Tule Creek and Anza Valley, Subunit 4 areas. Target species, such as the Quino checkerspot butterfly and the southwestern arroyo toad that were observed within the study corridor, would be adversely affected with the implementation of Alternative B, and conservation, mitigation, and habitat compensation measures have been integrated into the project to reduce the regional effects to below a level of significance.

3.6.4.3 Alternative C

Botanical Resources

The construction of Alternative C would directly impact upland scrub, chaparral, and riparian vegetation communities associated with Bautista Canyon. A total of 22.3 ha (55.1 ac) of direct impact would result from the implementation of the project under Alternative C, which includes 13.2 ha (32.6 ac) of permanent roadway effects and 9.1 ha (22.5 ac) of temporary roadway effects (see Table 3.6-4). Of the total direct effects stated above, 14.7 ha (36.3 ac) are direct effects to plant communities, which include 8.4 ha (20.8 ac) of permanent effects and 6.3 ha

(15.5 ac) of temporary effects. For Alternative C, the total new disturbance outside of the existing roadway would be 16.6 ha (41.0 ac). Effects to sensitive plant species are similar to the effects under Alternative A and are discussed below.

Zoological Resources

The project under Alternative C would result in the direct loss of habitat for wildlife species known or potentially occurring in Bautista Canyon. Alternative C will result in a total impact of 7.77 ha (19.2 ac) to chaparral habitats, 0.61 ha (1.50 ac) to upland scrub habitat, and 0.03 ha (0.08 ac) to riparian habitat.

All other effects of the proposed project under Alternative C would be the same as those discussed under Alternative A (Section 3.6.4.1). The effects of the project on sensitive wildlife species and wildlife movement are discussed below.

Regulated Waterways, Wetlands, and Riparian Areas

Alternative C would impact a total of 0.14 ha (0.35 ac) of USACE jurisdictional non-wetland waters of the U.S. and a total of 0.13 ha (0.32 ac) of USACE jurisdictional wetlands (see Table 3.6-4). Total impact to jurisdictional waters and wetlands would be approximately 0.27 ha (0.67 ac). Alternative C would impact a total of 0.21 ha (0.51 ac) of CDFG jurisdictional riparian habitat and unvegetated CDFG jurisdictional waterways.

Sensitive Species

The effects of the proposed project under Alternative C on sensitive plant species are similar to the effects under Alternative A. Table 3.6-5 lists the effects from the project under Alternative C to potential habitat for sensitive plant species.

Effects to sensitive wildlife species are similar to those under Alternative A, except for the number of acres of impact to the habitat of the southwestern willow flycatcher, Quino checkerspot butterfly, arroyo toad, and other sensitive species as shown in Table 3.6-5.

Alternative C would result in direct effects to 0.5 ha (1.3 ac) of habitat (vegetated) in the vicinity of the observed Quino checkerspot butterfly colony and 4.2 ha (10.3 ac) of potential suitable habitat within the study corridor (vegetated) of the Quino checkerspot butterfly. For the arroyo toad, direct effects to 2.6 ha (6.5 ac) of occupied upland habitat and 3.9 ha (9.6 ac) of vegetated habitat previously designated as Critical Habitat for the arroyo toad would result from the implementation of Alternative C (see Table 3.6-4). For the southwestern willow flycatcher, direct effects to occupied riparian habitat from the proposed project would include 0.3 ha (0.7 ac) under Alternative C. The project would relocate the roadway centerline 89 m (292 ft) away from the southwestern willow flycatcher species point location.

Habitat Connectivity and Wildlife Movement

Alternative C does not differ in its effects to habitat connectivity or wildlife movement from Alternative A. See Section 3.6.4 for a discussion of these effects. Measures to reduce the effects have been included in the project design and are discussed in Section 3.6.5.

Regional Resource Management Programs

Similar to the discussion provided for Alternative A, Alternative C is consistent with the goals, resource issues, and design guidance identified in the MSHCP for the Tule Creek and Anza Valley, Subunit 4 areas. Target species, such as the Quino checkerspot butterfly and the southwestern arroyo toad that were observed within the study corridor, would be adversely affected with the implementation of Alternative C, and conservation, mitigation, and habitat compensation measures have been integrated into the project to reduce the regional effects to below a level of significance.

3.6.4.4 Alternative D

Under the No Action alternative, improvements to Bautista Canyon Road would not occur. Existing conditions would remain the same as those described above in Section 3.6.1. Therefore, biological resource effects would not occur as a result of implementation of Alternative D.

3.6.5 Mitigation

The following special conservation measures have been incorporated into the proposed project to avoid, minimize, or compensate for potential effects to biological resources.

Habitat Compensation

To compensate for the impact to vegetation communities and to offset for the loss of wildlife habitat as a result of implementation of the proposed project, the following upland and wetland habitat compensation programs would be implemented.

Upland Habitat Compensation Program

Temporary construction effects to upland habitat would be mitigated through a comprehensive revegetation program that would be implemented by the FHWA. Cut and fill slopes adjacent to the roadway (excluding blasted rock slopes and cut slopes steeper than a 1:1.5 [V:H] ratio) and construction staging areas would be revegetated according to the Bautista Canyon Road Conceptual Landscape and Revegetation Plan (Volume II, Appendix F). This revegetation program would include appropriate seed mixes corresponding to the adjacent plant communities. The revegetation effort would also mitigate the erosion and sedimentation effects of construction by reducing the loss of topsoil and sedimentation into creeks and drainages. A preliminary estimate of the revegetation area is provided in Table 3.6-6. The acreages reported in Table 3.6-6 correspond with the temporary impact that would occur under each alternative alignment. Through the revegetation program, temporary effects to these plant communities would be mitigated at approximately a 1:1 ratio. Due to the steepness of the cut slopes and the underlying substrate in some sections of the study corridor, revegetation of the steep cut slopes would not be feasible. The impact calculations in Table 3.6-4 consider steep cut slopes to be permanent effects.

Table 3.6-6
Preliminary Upland Habitat Compensation Program[1]

Vegetation Community	Alternative A - 40 km/h acres (hectares)	Alternative B - 55 km/h acres (hectares)	Alternative C – 55/40/55 km/h acres (hectares)
Proposed Revegetation for Temporary Effects (1:1 ratio – temporary impact acres: revegetated acres)			
Upland Scrub			
Big Sagebrush Scrub	1.7	1.7	1.8
Coastal Sage-Chaparral Scrub	0.6	0.7	1.0
Chaparral			
Southern Mixed Chaparral	8.9	10.5	8.6
Red Shank Chaparral	1.0	1.1	1.5
Bigberry Manzanita Chaparral	1.3	1.6	1.2
Chamise Chaparral	0.9	0.9	0.8
Scrub Oak Chaparral	0.0	0.0	0.0
Total Habitat Compensation for Temporary Effects[3]	**14.4 (5.8 ha)**	**16.5 (6.7 ha)**	**14.9 (6.0 ha)**
Proposed Restoration for Permanent Effects			
Temporarily impacted dirt road sections[2]	6.7	5.7	7.0
Completely abandoned dirt road sections[2]	9.8	12.5	10.2
Total Habitat Compensation for Permanent Effects[3]	**16.5 (6.7 ha)**	**18.2 (7.4 ha)**	**17.2 (7.0 ha)**
Total Upland Habitat Compensation Program[3]	**30.9 (12.5 ha)**	**34.7 (14.0 ha)**	**32.1 (13.0 ha)**

Notes:
[1] Acreages reported are preliminary estimates of the proposed upland habitat compensation program. The Bautista Canyon Road Revegetation Plan is currently in development.
[2] A small portion of the reported acreage is dirt road sections that occur in wetlands or unvegetated drainages. Restoration or revegetation of abandoned road segments that occur in wetlands would be used to compensate for wetland effects, not for upland effects as reported here.
[3] Total may not sum due to rounding.
ha – hectares; km/h – kilometers per hour

Permanent direct effects to upland habitats resulting from the proposed project would be mitigated through revegetation of the abandoned road sections. Restorable abandoned road sections include all areas where temporary construction effects occur on the existing dirt roadway and all other areas of the existing roadway within the study corridor where the existing Bautista Canyon Road will be abandoned. A preliminary estimate of the acreage that would be restored through this project is provided in Table 3.6-6. This estimated acreage would be refined in the Bautista Canyon Road Revegetation Plan. A preliminary wetland mitigation strategy has been prepared and is currently under review by USACE.

Wetland Habitat Compensation Program

As noted, wetland mitigation opportunities are currently being investigated within the immediate Bautista Canyon watershed. A conceptual wetland mitigation plan has been developed for the project and is included in Volume II, Appendix H. Opportunities exist for creating and enhancing wetland habitat in Bautista Canyon within the study corridor and immediately downstream of the study corridor. The abandoned road section near the main Bautista Canyon Road crossing and the section in the riparian corridor near Tripp Flats have potential for wetland creation and enhancement. Specifics of the wetland habitat compensation program are currently in development. The details of this program would be developed in coordination with the requirements of the USACE, the RWQCB, and the CDFG. As a preliminary estimate, all temporary effects to wetland communities would be restored to their previous conditions. In some cases, the temporary effects (cut and fill slopes, construction staging areas) to wetland vegetation communities may change the physical characteristics of the site such that restoring it to wetland conditions is not possible. In such cases, the temporary impact to wetlands would be considered a permanent impact and would be mitigated as a permanent impact. It is important to note that the acreages reported in Table 3.6-7 reflect effects to wetland vegetation communities, which are greater than the acreages of impact to USACE jurisdictional areas. Only USACE jurisdictional areas are subject to the requirements of the USACE. In addition, Section 404 does not require compensatory replacement for riparian impacts. Riparian impact mitigation is provided in accordance with SBNF requirements. The development of this wetland habitat compensation program would be revised following negotiations with all the appropriate regulatory agencies.

Bautista Canyon Road Conceptual Landscape and Revegetation Plan

The Conceptual Landscape and Revegetation Plan (Volume II, Appendix F) provides recommendations for implementing the habitat compensation program including site preparation, seed and plant materials, monitoring and maintenance, irrigation, and development of performance criteria for chaparral, big sagebrush scrub, and riparian communities. Container plants or cuttings requiring irrigation would be limited to revegetation of riparian areas and the interpretive overlook site. Many of the cut slopes in the central portion of the alignment would be too steep to successfully revegetate. Methods such as rock staining would be used where appropriate to lessen negative visual effects. Sections 3.10 and 3.12 provide a more detailed discussion of mitigation measures associated with the effects of cut and fill slopes created by the project alternatives.

Table 3.6-7
Preliminary Wetland Habitat Compensation Program[1]

Vegetation Community	Alternative A acres (hectares)	Alternative B acres (hectares)	Alternative C acres (hectares)
Proposed Revegetation for Temporary Effects (1:1 ratio – temporary impact acres: revegetated acres)			
Southern Cottonwood-Willow Riparian Forest	0.7	0.6	0.3
Southern Willow Scrub	0.3	0.2	0.3
Total Habitat Compensation for Temporary Effects[2,3]	**1.0 (0.3 ha)**	**0.8 (0.3 ha)**	**0.6 (0.2 ha)**
Proposed Restoration for Permanent Effects to Wetlands			
Wetland Creation (1:1 ratio)	0.17	0.13	0.16
Wetland Restoration/Enhancement (1:1 ratio)	0.16	0.13	0.16
Total Habitat Compensation for Permanent Effects[3]	**0.33 (0.13 ha)**	**0.26 (0.10 ha)**	**0.32 (0.13 ha)**
Total Wetland Habitat Compensation Program[3]	**1.33 (0.5 ha)**	**1.26 (0.5 ha)**	**0.92 (0.3 ha)**

[1]Acreages reported are preliminary estimates of the proposed wetland habitat compensation program. These preliminary estimates reflect acreages based on effects to wetland habitat communities, which may differ from the acreages based on effects to USACE jurisdictional areas. The details of this wetland habitat compensation program may be modified upon negotiations with the regulatory agencies, including the USACE. Only effects to jurisdictional areas are subject to the requirements of the USACE.

[2] In some cases, the temporary effects (cut and fill slopes; construction staging areas) to wetland vegetation communities may change the physical characteristics of the site such that restoring it to wetland conditions is not possible. In such cases, the temporary impact to wetlands would be considered a permanent impact and mitigated accordingly.

[3]Totals may not sum due to rounding.
ha – hectares

Weed control would also be addressed in the Conceptual Landscape and Revegetation Plan and would focus on those species with the potential to interfere with the reestablishment of native vegetation in the restoration area and those species that are not already so prevalent in areas immediately adjacent to the restoration area such as yellow star thistle, Russian thistle, and tocalote in upland communities, and tamarisk, castor bean, and poison-hemlock in riparian areas. Weed control methods would include a combination of manual removal and monitored use of herbicides.

General Conservation Measures

- A qualified biological monitor(s) having local experience with the biological resources of Bautista Canyon would be retained to oversee and monitor all construction activities occurring adjacent to areas occupied by listed species. If multiple segments of the corridor are concurrently under construction, multiple biological monitors may be necessary.
- The FHWA would hold preconstruction meetings to brief contractors on the location of sensitive resources and construction boundaries.

- The biological monitor would ensure that environmental fencing marking the limits of work is appropriately placed to avoid accidental effects and protect listed species or their habitat and that it remains in good condition for the duration of the project.
- All construction equipment shall be fueled and maintained at least 30.5 m (100 ft) from the nearest wetland or waters of the U.S. in designated staging areas with proper drip containment measures.
- The biological monitor would document in monthly construction reports all cases where construction has directly affected occupied listed species habitat or an individual of a listed species. Appropriate corrective actions would be recommended in these reports and the reports would be forwarded to the wildlife agencies.
- Unanticipated temporary damage to listed species habitat and wetlands during construction shall be restored to predisturbance habitat conditions. The appropriate enhancement shall be recommended by the biological monitor and approved by the USDAFS in coordination with the USFWS and FHWA.
- Permanent loss of listed species habitat would be compensated for based on the resource affected according to the procedures identified in this section.
- Compliance would be required with federal, state, and local regulations pertaining to hazardous waste and substances, and oily substances. The contractor would attend an environmental briefing and provide a list of the types, quantities, and use of hazardous materials brought onto the site and the types and quantities of wastes/wastewater that might be generated during construction.
- Appropriate BMPs shall be used such as diversion ditches, benches, berms, silt fences, and straw bales to retard and divert runoff to protected drainage courses and protect water quality during and after construction.

Resource Specific Conservation Measures

<u>Quino Checkerspot Butterfly</u>

- The improvement alternatives have been centered on the existing roadway in the vicinity of the known occupied habitat of the study corridor to reduce impact to natural vegetation in this area.
- Direct permanent loss of suitable habitat would be compensated through the habitat compensation measures described in this section.
- Seed mixes to be developed for the final revegetation plan for this project should include host and nectaring plant species used by the Quino checkerspot butterfly, including dot-seed plantain and owl's clover.

<u>Arroyo Toad</u>

- Construction in the northernmost 2.4 km (1.5 mi) of the study corridor (downstream section) would occur outside of the toad-breeding season (15 March through 15 August) to avoid effects to breeding toads, eggs, tadpoles, and maturing juveniles. This would also avoid effects to the designated Critical Habitat during the breeding season. It is important to note that while construction truck traffic would be allowed in the downstream section, earthwork would not be permitted.

- A toad exclusion program would be developed to avoid and minimize direct impact to buried or foraging toads in the occupied downstream section of Bautista Canyon, near Hixon Trail. In areas where toad exclusion is required, construction areas would be surrounded by a low fence of plastic or wooden stakes, similar to a silt fence. The fence would be at least 305 mm (12 in) high, and at least 305 mm (12 in) would be spread outward and secured tightly against the ground to prevent toads from burrowing down under the fence. The exclusion area shall include all open trenches, soil piles, roadways, and staging areas. The exclosure shall be monitored for a minimum of three nightly visits, and any toads found would be relocated to adjacent suitable habitat by a qualified biologist. Monitoring would continue until no toads are found for at least two consecutive nights under suitable weather conditions. Once construction is complete in the occupied section, the fence shall be removed within 3 days after completion of construction.
- Revegetation of upland cut and fill slopes (with slopes 1:1.5 [V:H] or flatter) and construction staging areas would mitigate potential long-term erosion and sedimentation effects associated with construction of the project.
- A toad barrier system would be developed for Bautista Canyon Road in the off-site downstream section where the roadway is located within the riparian corridor of Bautista Creek. The arroyo toad population in Bautista Canyon is concentrated in an approximately 3.2 km (2 mi) long reach in the vicinity of Bautista Spring and the Hixon Trailhead. Implementation of the toad barrier system would be focused in this area. In general, the roadway in this section abuts the steep canyon slopes on the eastern edge the Bautista Creek floodplain. The Bautista riparian corridor parallels the roadway on the west. A toad barrier system would be developed to prevent toads from accessing the existing roadway.

  The toad barrier system would use the existing culvert structures on Bautista Canyon Road in this section. Numerous culverts currently exist where tributaries drain from the eastern side of the road, beneath the roadway, and into Bautista Creek. On the western edge of the roadway, minor modifications to the existing culverts and/or curbs in the area of the culverts may be necessary to keep the toads off the roadway. These modifications could include constructing cribwalls or connecting existing cribwalls to the existing curbs.

  In developing the details of this system, site-specific investigations would be necessary. A detailed toad barrier system plan would be developed and submitted to the USFWS and USDAFS for approval prior to implementation. Appropriate measures should be included in the detailed plan to avoid any impacts to toads from the construction of the toad barrier system.

  The overall goal of the system would be to minimize toad mortality on the roadway. To evaluate the effectiveness of these measures, a biologist would monitor the effectiveness of the system in the first season. A monitoring report, including recommendations on system modifications, would be developed and submitted to the wildlife agencies within the first year of system implementation.

<u>Southwestern Willow Flycatcher</u>

- Construction activities resulting in excessive noise (e.g., rock blasting) within 0.4 km (0.25 mi) of the known breeding territory would occur outside of the breeding season (considered to occur from March 15 to August 31) to avoid construction noise effects to nesting birds.
- The proposed design would relocate the Bautista Canyon Road centerline between 72 and 89 m (236 and 292 ft) away from the species point location in the vicinity of Tripp Flats. This would act to mitigate any permanent indirect effects of increased traffic noise generation from the new roadway on this known breeding territory.
- Direct permanent loss of occupied riparian habitat would be compensated through the habitat compensation measures described in this section.

<u>Habitat Connectivity and Wildlife Movement</u>

- The project design includes a bridge at the main Bautista Creek crossing. This design will remove the effects of the existing dirt road crossing and enhance wildlife movement at this location.
- The project design includes a large, oversized box culvert at the Tripp Flats crossing. This design will allow for improved wildlife movement at this location.
- Following a review of numerous additional locations for oversized culverts for wildlife movement, the design team has included provisions for wildlife movement at the following locations:
  - Station 312+215 (Existing horseshoe bend west of the Bautista Crossing)
  - The Bridge at Bautista Creek
  - Station 320+440 (The base of the existing switchbacks)
  - Station 324+532 (145 m north of Tripp Flats Road)
  - Station 324+680 (Tripp Flats Road)
- In general, the project has been designed to reduce the overall right-of-way corridor width through using steep cut and fill slopes. This reduces the overall impact acreage and minimizes the effects on habitat connectivity.
- Other measures such as wildlife crossing signs will be used at appropriate locations along the improved roadway to minimize the effect of the project on wildlife movement.

<u>Other Specific Measures</u>

- BMPs will be used during construction of the roadway to avoid and minimize erosion and sedimentation. A Storm Water Pollution Prevention Plan (SWPPP) will be developed that defines BMPs to be implemented during construction of the project to avoid and minimize these effects.
- Preconstruction surveys for slender-horned spineflower would be conducted during the appropriate time of year in appropriate areas of the study corridor prior to construction to

ensure this species would not be impacted by the project. Avoidance or relocation measures may be necessary if the species is located within the study corridor during these surveys.

- Preconstruction raptor nest surveys would be conducted. Construction personnel would be informed of the general location of any raptor nests found and would be directed to avoid these locations to the maximum extent possible.

3.7 Hydrology/Water Resources

Surface and subsurface water are included in the water resource analysis. Surface water includes all lakes, ponds, rivers, and streams within a defined area or watershed. Subsurface water is commonly referred to as "groundwater."

Water resources analyzed in this section include the surface waters located within the BMU of the SBNF and the San Jacinto watershed. Flood hazards associated with the 100-year floodplain (areas generally subject to random major flooding once every 100 years) are also discussed in this section. Jurisdictional waters of the U.S. and wetlands are discussed in Section 3.6, Biological Resources. The project study area for water resources includes the surface and subsurface water features found within the San Jacinto watershed, which overlaps the BMU.

3.7.1 Existing Conditions

Precipitation/Climate

Southern California's climate is Mediterranean, characterized by hot, dry summers and cool, moist winters. These conditions vary widely with topography and elevation. Mean annual rainfall within the project area averages 360 mm (14 in) and generally occurs from November through March. Temperatures are moderate, with only a few nights below freezing. Summer midday temperatures occasionally rise above 38°C (100°F).

The higher elevations within the SBNF have an average annual precipitation of approximately 760 mm (30 in). Snow occurs above 1,524 m (5,000 ft). Rainfall on the desert side of the SBNF ranges from 50 to 127 mm (2 to 5 in) with typical low humidity and extreme temperatures. High-intensity thunderstorms occur July through September. Flash flooding can occur, particularly on the desert slopes. The prevailing wind is from the southwest coastal area and strong, dry, northeasterly Santa Ana winds are common in fall and winter months (USDAFS 1988).

Elevations within the BMU range from 610 m (2,000 ft) to 1,707 m (5,600 ft) at Cahuilla Mountain. The average annual precipitation of approximately 305 mm (12 in) (USDAFS 1989a). Average annual snowfall is approximately 152 mm (6 in) in the Anza area with almost no snowfall in Hemet. Average annual temperatures in Hemet range from 27°C (81°F) in the summer to 11°C (52°F) in the winter. No annual temperature data were available for Anza (WRCC 2003).

Surface Water Hydrology

The project area is located within the San Jacinto watershed. The San Jacinto watershed includes an area of approximately 1,953 km^2 (754 mi^2), which is drained by three principal creeks and one river (Bautista Creek, Indian Creek, Poppet Creek, and the San Jacinto River) as shown in Figure 3.7-1. Bautista Creek joins the San Jacinto River approximately 24 km (15 mi) northwest of the project's northern terminus. The majority of runoff flows in a westerly to southwesterly direction into Canyon Lake and then Lake Elsinore. Lake Elsinore is located within the City of Lake Elsinore in Riverside County and is the natural low point of the San Jacinto River and its drainage basin. Canyon Lake is a public water source managed by the Elsinore Valley Municipal Water District. Lake Elsinore is not a public water source (SARWQCB 1995; CRWQCB 2001; USEPA 2000).

The Bautista Creek watershed consists of two major drainages: Bautista Creek and Cottonwood Creek. Bautista Creek is a subunit of the San Jacinto watershed as shown in Figure 3.7-1. The Bautista Creek watershed is approximately 50 km^2 (19 mi^2) in size. Bautista Creek flows from south to north down the canyon, from Anza toward Valle Vista. The major drainages, including Bautista Creek, are characterized by southern willow scrub with patches of cottonwood willow riparian forest. Soils found in the project study area are generally composed of coarse to silty sand that are cohesive when in a dry state, but highly subject to erosion during high precipitation events.

Overall, the hydrologic systems in the mountains produce a fairly low output, though as noted, high stream flows can occur during tropical storm events. Numerous springs are located throughout the study area. Within the study area, water is found in springs at Tripp Flats and at the Ramona Indian Reservation in the upper end of the canyon, and also at Bautista Spring in the lower end. Bautista Creek itself, with a drainage area of 124 km^2 (47.6 mi^2), typically sustains low-to-moderate flows from January through March, but often dries up completely during the driest months of summer and fall (SRI 2003).

Flood Hazards

Floods affecting Riverside County can be attributed to three types of storm events: (1) general winter storms that combine high-intensity rainfall and rapid melting of the mountain snow pack; (2) tropical storms out of the southern Pacific Ocean; and (3) summer thunderstorms, particularly in the desert areas. According to the Flood Insurance Study for the County of Riverside (FEMA 1996), most major floods in Riverside County have occurred as a result of general winter storms. However, serious flooding, including potentially lethal flash flooding, has also occurred as a result of summer thunderstorms. Flooding is more likely to occur in highly disturbed areas where soils have been compacted and the vegetation removed. Wildfire can also increase flood potential by damaging vegetation and creating hydrophobic soil conditions.

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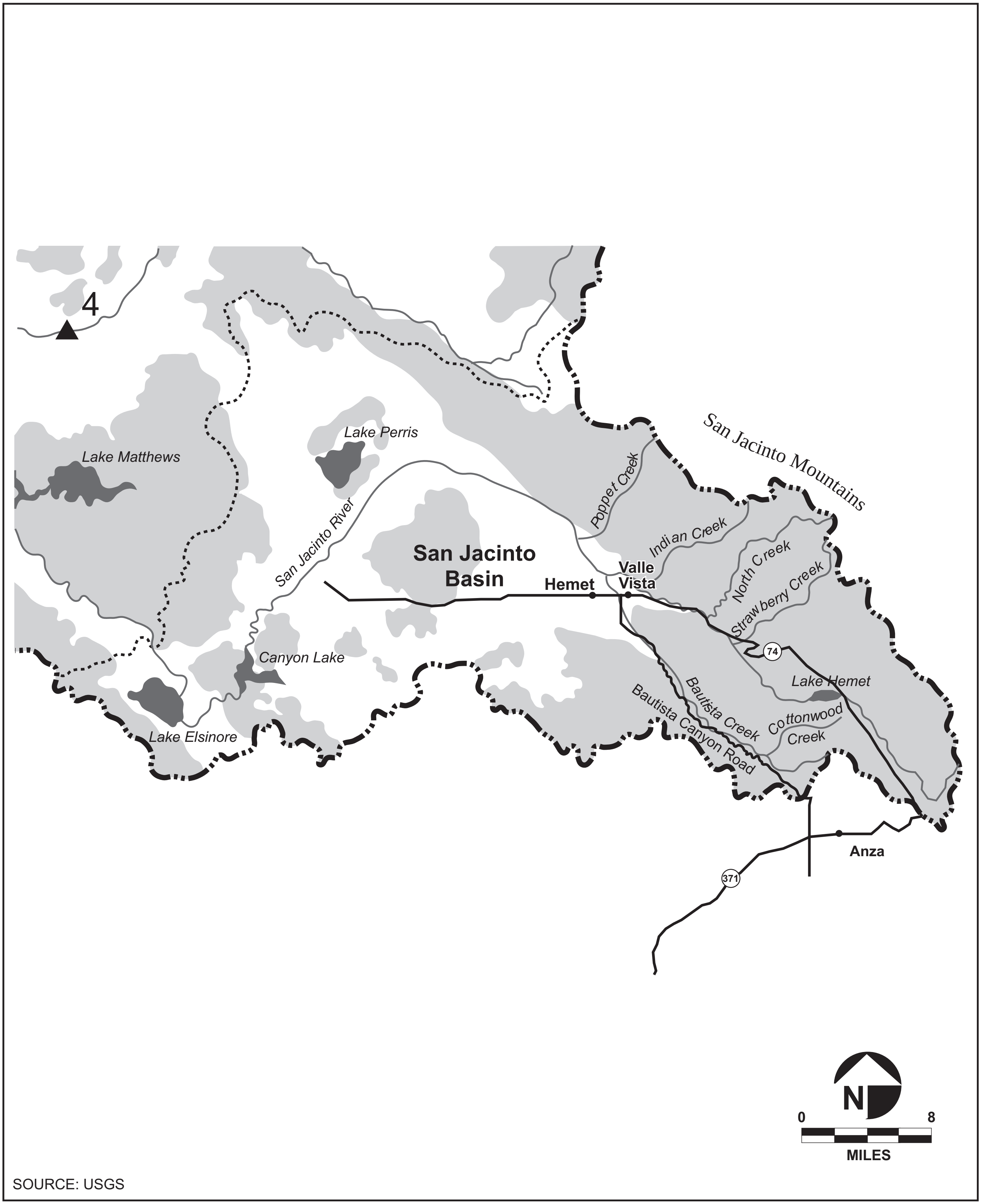

FIGURE 3.7-1

San Jacinto Watershed

GRAPHIX/Environmental/Bautista Canyon Road/San Jacinto Watershed.FH8

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There are three principal types of flood hazards. These include stream flooding (including bridge scour and stream erosion), flash flooding (including debris and mud flows), and sheetflow flooding (including alluvial fan flooding). Although Bautista Creek is outside of the mapped 100-year floodplain, Bautista Creek and other drainages within the project study corridor are ephemeral creeks subject to 50- and 100-year storm events, which can cause flooding (FEMA 2003). Thus, as required by the SBNF, drainage crossings will be designed to accommodate 50-year flood events. The proposed bridge over Bautista Creek would be designed to withstand 100-year flood events.

Groundwater

Groundwater was not encountered within any of the deep borings in the elevated central section of the project as described the interim geotechnical investigation (FHWA 2003). Further, a sustained water table was not clearly delineated within 4 to 6 m (13.1 to 19.7 ft) of the surface at the proposed pier location for the bridge crossing at Bautista Creek (FHWA 2003). No sole source aquifers or wellhead protection areas are known to occur in the area.

3.7.2 Regulatory Setting

Federal

Executive Order 11988

Executive Order (EO) 11988, *Floodplain Management*, directs each agency to *"provide leadership and take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains…."*

The federal Clean Water Act (CWA) of 1977 (33 *United States Code* [USC] 1251 *et seq.*) is the primary law regulating water pollution. Relevant sections include:

- Section 303, which requires states to establish and enforce water quality standards to protect and enhance beneficial uses of water for such purposes as recreation and fisheries.
- Section 313(a), which requires federal agencies to observe state and local water quality regulations.

State and Local

Santa Ana River Basin (8) Water Quality Control Plan

The State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs) are responsible for the protection and, where possible, the enhancement of the quality of California's waters. The SWRCB sets statewide policy and, together with the RWQCBs, implements state and federal laws and regulations. Each of the nine RWQCBs adopts a Water Quality Control Plan or Basin Plan, which recognizes the beneficial uses of the regions' ground and surface waters, and local water quality conditions and problems. The Santa Ana Regional Water Quality Control Board (SARWQCB) has jurisdiction over the San Jacinto River watershed and manages those resources consistent with the 1995 Santa Ana River Basin (8) Water Quality Control Plan (Basin Plan). The Basin Plan forms the basis for the SARWQCB regulatory program and establishes water quality standards for ground and surface waters in the region. Water quality standards, as used in the federal CWA, include both the beneficial uses of specific water bodies and the levels of quality that must be met and maintained to protect those uses.

As discussed, Bautista Creek is a tributary to the San Jacinto River, which empties into Canyon Lake and then into Lake Elsinore. The main stream of the San Jacinto River is divided into seven reaches including Bautista Creek. Bautista Creek is located within Hydrologic Units 802.21 and 802.23 beyond Reach 7 (Cranston Bridge to Lake Hemet) of the San Jacinto River basin. Table 3.7-1 shows the water quality objectives designated in the Basin Plan for Bautista Creek from the headwaters to the Bautista Debris Basin. The Bautista Debris Basin was constructed in 1960 by the USACE to act as a sediment trap during the ephemeral flows of Bautista Creek.

Table 3.7-1
Santa Ana River Basin (8) Water Quality Control Plan Objectives for Bautista Creek

Parameters of Concern	Objective (mg/l)
Total dissolved solids	250
Hardness	130
Sodium	25
Chloride	20
Tin	1
Sulfate	30
Chemical oxygen demand	5

mg/l = milligrams per liter

The USEPA publishes criteria for water quality that reflect the latest scientific knowledge regarding the effects of pollutants in any body of water. The overall Index of Watershed Indicators has assigned the San Jacinto watershed a score of 4, which indicates “Less Serious Problems – High Vulnerability” to stressors such as pollutant loading (USEPA 2001). These water quality assignments are defined as follows:

- **Watersheds with Less Serious Water Quality Problems** – watersheds with aquatic conditions below state or tribal water quality goals that have problems revealed by other indicators.
- **Watersheds with Higher Vulnerability to Stressors** – watersheds where data suggest significant pollution and other stressors and, therefore, a higher vulnerability to declines in aquatic health. These watersheds have the greatest need for actions to protect quality and prevent decline.

In addition to water quality standards, the Basin Plan defines beneficial uses for Bautista Creek (Hydrologic Units 802.21 and 802.23) from the headwaters to the Bautista Debris Dam as municipal and agricultural water supply, groundwater recharge, water contact recreation, water noncontact recreation, cold freshwater habitat, and wildlife habitat. Intermittent beneficial uses identified for Reach 6 of the San Jacinto River (Poppet Creek to Cranston Bridge), which includes the confluence of Bautista Creek with the San Jacinto River, include municipal and agricultural water supply, groundwater recharge, water contact recreation, water noncontact recreation, warm freshwater habitat, and wildlife habitat. Beneficial uses established for Canyon Lake include municipal and agricultural water supply, groundwater recharge, recreation, warm freshwater habitat, and wildlife habitat. Beneficial uses identified for Lake Elsinore include water contact recreation, water noncontact recreation, warm freshwater habitat, and wildlife habitat (SARWQCB 1995).

Section 303(d) of the CWA requires states to develop and update a list of surface water bodies for which water quality standards are not attained or are not expected to be attained with the implementation of technology-based controls. These water bodies are designated “impaired.” The resulting 303(d) list of impaired water bodies includes a description of the pollutants causing the impairment and a schedule for developing a total maximum daily load (TMDL) for each pollutant. The TMDL is the maximum load of a pollutant that can be discharged into the water body per day and still ensure the attainment of applicable water quality standards. Both Canyon Lake and Lake Elsinore are included on the 1998 CWA Section 303(d) list as impaired water bodies. Canyon Lake is listed as impaired with excess nutrients and pathogens. Lake Elsinore is listed as impaired with excess nutrients, organic enrichment or low dissolved oxygen, and sedimentation/siltation. The causes of the impairments are identified as unknown, nonpoint sources and storm water/urban runoff. The draft 2002 Section 303(d) list includes Canyon Lake (East Bay) because of its high sedimentation.

Bautista Creek and the San Jacinto River are not listed as impaired water bodies on the current CWA Section 303(d) list. However, the SARWQCB has recommended Reach 6 of the San Jacinto River to be on the Monitoring Priority 1 Water Bodies List for the 2002 Section 303(d) list update. The parameters of concern that had exceedances of water quality standards were hardness, total dissolved solids, chloride, aluminum, and sodium. The SARWQCB deemed that these exceedances did not warrant listing on the 303(d) list in 2002, but required additional monitoring to further evaluate whether there was water quality impairment.

In addition to the Basin Plan, the following acts, orders, and regulations apply to waters within the project study area:

- The Porter-Cologne Water Quality Control Act of 1969 mandates that the waters of the state be protected such that activities that may affect waters of the state are regulated to attain the highest water quality.
- California Regional Water Quality Control Board, Santa Ana Region, Order No. 01-34, National Pollutant Discharge Elimination System (NPDES No. CAG 618005) establishes watershed-wide waste discharge requirements for discharges of storm water runoff associated with new development in the San Jacinto watershed. A SWPPP is required.

- State Water Resources Control Board Order No. 99-08-DWQ (NPDES General Permit No. CAS000002) establishes waste discharge requirements for discharges of storm water runoff associated with construction activity and State Water Resources Control Board Resolution No. 2001-046.
- Order No. 96-30 (NPDES No. CAS618033) establishes waste discharge requirements for the Riverside County Flood Control and Water Conservation District, the County of Riverside, and the incorporated cities of Riverside County within the Santa Ana Region Storm Water Runoff Management Program.
- August 23, 2002, Draft California Regional Water Quality Control Board, Santa Ana Region, Order No. R8-2002-0011 (NPDES No. CAS 618033) establishes waste discharge requirements for the Riverside County Flood Control District, the County of Riverside, and the incorporated cities of Riverside County within the Santa Ana Region Area Wide Urban Runoff Program.

Local

The Riverside County Flood Control and Water Conservation District's mission is to protect people and property from flooding through responsible and efficient storm water management. The District has developed and adopted Master Drainage Plans (MDPs) that address many individual watershed areas within the District's jurisdiction. The MDPs include proposed drainage facilities to protect property from serious flooding. Conceptual designs and project cost estimates are included in most plans. Some MDPs are the bases for Area Drainage Plans (ADPs), which are funding mechanisms established to pay for major drainage facilities within some MDPs. The ADPs impose fees that must be paid by land developers.

Specific mitigation measures have been incorporated in the Riverside County Stormwater/Urban Runoff Management and Discharge Controls Ordinance No. 754.1 and the SWPPPs for development projects under NPDES Permit No. CAG 618005. Implementation of these measures will ensure that the quality of storm water runoff leaving the project site will meet all regulatory standards and will maintain the beneficial uses for public and commerce.

SBNF Land and Resource Management Plan (LRMP) Water Goal

The SBNF LRMP established goals to provide the broad, overall direction for the management of resources. The following Plan goal for water would apply to the proposed action:

Water

- *Maintain and enhance water quality to meet or exceed beneficial use requirements.*

<u>County of Riverside General Plan/REMAP Local Hazard – Flooding and Dam Inundation Policies</u>

The following policies have been established to address hazards to life and property from significant flood events on the rivers and creeks located within the REMAP area:

Local Hazard – Flooding and Dam Inundation

REMAP 13.1 Adhere to the flood proofing and flood protection requirements of the Flood Management Review Board.

REMAP 13.4 Protect life and property from the hazards of potential dam failures and flood events through adherence to the Flood and Inundation Section of the General Plan Safety Element.

3.7.3 Thresholds of Significance

The proposed project would have a significant impact on the environment if it would:

- violate any water quality standards or waste discharge requirements;
- substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion of siltation on- or off-site;
- substantially alter the existing drainage pattern of the site or area, including through the alteration of a course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site;
- create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff;
- otherwise substantially degrade water quality;
- place within a 100-year flood hazard area structures that would encroach to displace, impede, or redirect flood flows;
- expose people or structures to a significant risk of loss, injury, or death due to inundation by mudflow; or
- expose people or structures to a significant risk of loss, injury, or death involving flooding.

3.7.4 Environmental Consequences

3.7.4.1 Alternative A

Surface Runoff. Implementation of Alternative A would result in the construction of impervious surfaces (i.e., pavement) and compaction of adjacent areas. Compacted areas would be revegetated after construction. Revegetation would reduce infiltration, resulting in additional surface runoff within the study area. This runoff would be generated primarily within the paved 13.2 km (8.2 mi) segment and the two pullout/parking areas. Runoff would flow into principal drainages, and eventually into the proposed drainage ditches (see Figure 2.2-6). The ditches would be equipped with energy dissipaters to minimize the effects of surface runoff. The proposed drainage facilities would be designed to accommodate projected runoff associated with a 50-year flood event. Construction activities that disturb more than 1 acre require a NPDES permit to mitigate construction-related water quality effects. A SWPPP would be required pursuant to the NPDES permit to identify the various BMPs to be implemented on-site during construction. Compliance with NPDES permit requirements would minimize construction-related erosion and sedimentation.

As noted, operation of Alternative A would not substantially alter existing drainage patterns. Runoff would increase; however, the storm water drainage system would be designed to accommodate flows associated with a 50-year flood event. Thus, no flooding is anticipated. The proposed project would not create substantial additional sources of polluted runoff, or otherwise substantially degrade water quality.

Drainage. Alternative A would be designed to keep water from collecting and flowing in the roadway, as it currently does in many areas. The project would require installation of culverts to accommodate projected runoff at drainage concentration points (FHWA 2002). All drainage crossings are anticipated to be culverts except at Bautista Creek, which would be a bridge crossing. The proposed bridge over Bautista Creek and proposed culverts would not involve grading of the channel bed or drainages; therefore, no alteration to the course or flow of flood waters would occur with implementation of Alternative A.

As noted, outlet points at all culverts would incorporate energy dissipation structures to prevent channel erosion associated with high discharge velocities. The proposed structures would be riprap aprons. Based on the data provided in the project hydraulic and floodplain analyses (FHWA 2002), no significant effects to runoff patterns, drainage capacities, or erosion would be expected in association with the culverts proposed for Alternative A.

Hydraulics. As noted, the proposed design incorporates a number of drainage facilities at major stream crossings, including culverts at drainage concentration points and a bridge crossing at Bautista Creek. New culverts would be built under the roadway at existing drainage crossings.

A floodplain analysis was performed for the Bautista Creek crossing location for each alternative (FHWA 2002). An initial fluvial geomorphic and channel stability assessment indicated that sediment and debris transport are concerns due to the evidence of flash flood conditions found within the stream corridor. Analysis indicates that the culvert proposed at Tripp Flats and the next upstream culvert would each require a minimum 3 m by 3 m (10 ft by 10 ft) box culvert. All other tributaries would require smaller box culverts, corrugated metal arched culverts, or circular culverts. All culverts would be designed to maintain existing drainage patterns to the maximum extent feasible and would accommodate projected 50-year storm flows. The proposed bridge over Bautista Creek would be designed to accommodate 100-year storm flows.

For the proposed bridge crossing over Bautista Creek, the hydraulic and floodplain data (FHWA 2002) includes an analysis of the proposed bridge design (see Figure 2.2-4) with respect to flow depth, scour, velocity and volume. Results of this study are summarized in Table 3.7-2. As shown in Table 3.7-2, modifications to existing runoff would not change flow areas or velocities. The bridge would be built about 4 m (13 ft) above the creek. The placement of a single mid-span pier support column for the bridge would not result in significant floodplain effects, and would minimally alter surface flows in the main channel. Thus, no significant changes to drainage patterns are anticipated.

Table 3.7-2
Summary of Flows at Alternative A Bridge Crossing

Existing Channel				Proposed Channel			
Q 100[1]	Flow Area	Velocity	Flow Depth	Q 100[1]	Flow Area	Velocity	Flow Depth
59 cm/s 2,084 cf/s	13.1 m^2 141 ft^2	4.5 m/s 15 ft/s	1.7 m 5.6 ft	59 cm/s 2,084 cf/s	13.1 m^2 141 ft^2	4.5 m/s 15 ft/s	1.7 m 5.6 ft

Source: FHWA 2003

[1]100-year storm flow projections
cf/s – cubic feet per second
cm/s – cubic meters per second
ft/s – feet per second
m^2 – square meters
m/s – meters per second
ft^2 – square feet

Scour. Fill slopes located beneath the proposed bridge structure would require abutment slope protection to counter potential scour during flow events. These protective features would be designed to current FHWA design standards. This design is considered adequate to preclude any significant potential effects to stability of the bridge support slope. Current bridge design includes the placement of one pier structure at least 1 m (3.3 ft) above the channel on the south bank. All aspects of proposed bridge design would be subject to review by the County of Riverside prior to project approval. The 100-year discharge would be used for bridge scour and stability analyses.

Erosion/Sedimentation. Proposed construction and excavation activities could increase the potential for erosion and transport of material both within Bautista Creek and downstream of the study area to the San Jacinto River during storm events. As an ephemeral stream, Bautista Creek is dry most of the year; however, during storm events, existing runoff is loaded with sediment from the exposed ground surrounding the entire project area, including the existing unpaved segment of Bautista Canyon Road. Specifically, the removal of stabilizing vegetation cover, creation of manufactured slopes, and use of fill could result in erosion and sedimentation effects, particularly during construction. This is a concern because, as discussed above, the San Jacinto River is on the Monitoring Priority 1 Water Bodies List, and sediment-laden runoff could degrade water quality.

The movement of eroded materials into local drainages during storm events could significantly affect surface water quality both directly through increased sediment loads and indirectly through the presence of small-diameter particles to which contaminants such as organic compounds could adhere. Areas under construction would be especially susceptible to erosion between the beginning of construction and the establishment of permanent cover in revegetated areas. These potential effects would be mitigated through the preparation of a SWPPP, including an erosion control plan that would be implemented prior to ground-disturbing activities. The SWPPP and erosion control plan would reduce the short-term construction effects from erosion and sedimentation to below a level of significance.

Over the long-term, implementation of Alternative A would reduce existing erosion and sediment transport into local drainages during storm events.

Contaminants. Proposed construction activities could result in short-term effects to local water quality through the accidental direct or indirect discharge of hazardous materials such as vehicle fuels, lubricants, and chemicals (i.e., herbicides, etc.) into drainage courses. Potential discharge of such contaminants would be associated with vehicle operation and maintenance activities during construction (refueling and changing fluids). The introduction of construction-related contaminants into local drainages could degrade local water quality and associated resources (habitat quality). However, project specifications would prohibit construction equipment from operating in waters of the U.S., and all work areas would be separated by the use of a dike or other suitable barrier to prevent sediment, petroleum products, chemicals, and liquid or solid material from entering waters of the U.S. This would reduce the potential effects to below a level of significance.

The operation of motor vehicles along the proposed 13.2 km (8.2 mi) segment could result in the generation of additional contaminants associated with incidents such as fuel or oil leaks, tire degeneration, and refuse disposal. These contaminants could be carried into local drainages through storm water runoff. These effects are not expected to degrade local water quality because of the minute quantity and the long distance between the project site and the San Jacinto River, which is well downstream [approximately 24 km (15 mi)] from Bautista Creek.

Flood Hazards. No structures are proposed to be placed within a 100-year flood hazard zone; therefore, construction of Alternative A would not impede or redirect flood flows. The proposed alignment would be designed so that the roadway would be located outside of the 100-year floodplain. The proposed bridge over Bautista Creek would not encroach into the 100-year floodplain; however, it would be designed to accommodate 100-year storm flows. The proposed alignment would be designed so that the roadway would not expose people or structures to a significant risk of loss, injury, or death involving flooding or to inundation by mudflow.

Alternative A is consistent with the flooding and dam inundation policies of REMAP. Because the proposed alignment shifts the roadway out of the 100-year floodplain and proposes a bridge over Bautista Creek, Alternative A would provide an all-weather, safe creek crossing. As noted, all culverts and drainage facilities would be designed to accommodate 50-year storm flows and would meet current FHWA design standards.

Alternative A would be in conformance with the regulatory requirements as described in Section 3.7.1. Short-term water quality effects due to construction activities and long-term water quality effects due to runoff and soil erosion would be mitigated through erosion control measures and BMPs as described in Section 3.7.5.

Alternative A would be consistent with the SBNF LRMP water quality goal to "*maintain and enhance water quality to meet or exceed beneficial use requirements.*" Incorporation of BMPs and implementation of the mitigation measures as described in Section 3.7.5 would reduce surface water and water quality effects.

3.7.4.2 Alternative B

Based on the available level of hydrological analysis, potential effects associated with Alternative B are anticipated to be similar to those described above for Alternative A because construction activities and design features are very similar.

3.7.4.3 Alternative C

Based on the available level of hydrological analysis, potential effects associated with Alternative C are anticipated to be similar to those described above for Alternative A because construction activities and design features are very similar.

3.7.4.4 Alternative D

Under the No Action alternative, improvements to Bautista Canyon Road would not occur. The unpaved segment of Bautista Canyon Road would continue to erode, thus contributing to sedimentation in Bautista Creek during storm events. Under the No Action alternative, flood hazards would continue in portions of Bautista Creek, thus exposing people to risk from flood waters, mud flows, or other direct and indirect effects associated with storm water runoff.

3.7.5 Mitigation

- A Conceptual Landscape and Revegetation Plan has been prepared (Volume II, Appendix F) and an erosion control plan would be prepared to reduce erosion and sedimentation from disturbed areas and cut and fill slopes. Additionally, all applicable requirements of the NPDES Program in effect at the time of project construction would be implemented to the satisfaction of the County of Riverside Transportation and Land Management Agency.
- Prior to the issuance of any construction or grading permit and/or the commencement of any clearing, grading, and excavation, a SWPPP would be prepared and submitted for approval

to the Riverside County Transportation and Land Management Agency pursuant to County Ordinance No. 754.1. Examples of BMPs that may be implemented during site grading and construction as part of the SWPPP could include the following:

General Construction and Site Supervision

- Disallow the placement of any soils materials in the path of known drainage areas.
- Provide temporary desilting basins to ensure that surface water flow does not carry significant amounts of on-site soils and contaminants downstream.
- Restrict the use of chemicals that may be transferred to surface waters by storm water flows or leach to groundwater basins through water percolation into the soil.
- Design surface and subsurface drainages to preclude ponding and flows over slopes or disturbed areas.
- Clean up leaks, drips, and other spills immediately. This will prevent contaminated soil or residue on paved surfaces.
- Make sure portable toilets are in good working order. Check frequently for leaks.
- Dispose of all wastes properly. Materials that cannot be recycled must be taken to an appropriate landfill or disposed of as hazardous waste. Never bury waste materials or leave them in the roadway or near a creek or streambed.

Vehicle and Equipment Maintenance

- All construction vehicle maintenance must be conducted in staging areas where appropriate controls have been established to ensure that fuels, motor oil, coolant, and other hazardous materials are not deposited into areas where they may enter surface water and groundwater.
- Storage of all vehicles, equipment, materials, and soil stockpiles shall be located outside established drainage courses to preclude off-site discharge through measures such as impervious liners and containment walls. The location and design of such facilities shall be coordinated with the County of Riverside Transportation Department and the SARWQCB.
- Project operations shall include a schedule for regular inspection and maintenance of all project-related drainage facilities to ensure proper working conditions.
- All vehicles and heavy equipment shall be regularly maintained and inspected frequently for leaks.

Erosion Control Methods

- Temporarily cover or seed excavated and graded areas where loose, bare soil might otherwise be subject to wind and water erosion.
- If possible, schedule excavation and grading activities for dry weather periods.

- Require permanent slopes and embankments be vegetated as soon as possible following final grading.
- Use sandbags, matting, mulches, berms, or similar devices along all pertinent graded areas to temporarily minimize sediment transport.
- Scarify applicable compacted areas to induce runoff infiltration and revegetation.
- Protect disturbed soil during and after construction. Plant fast-growing annuals and perennials to shield and bind soil.
- Consider planting temporary vegetation for erosion control on slopes or where construction is not immediately planned.

Federal Lands Highway projects are constructed using guidelines included in the *Standard Specifications For Construction of Roads and Bridges on Federal Highway Projects (FP),* which contain BMPs that are employed on Central Federal Lands Highway Division's federal highway projects. For each individual project, the FP is normally supplemented with a set of Special Contract Requirements (SCRs), which either modify an FP requirement or add a new requirement. In addition to the above-listed BMPs, the following BMPs would be implemented to reduce erosion, sediment, and water quality impacts to below a level of significance:

- The contractor shall not operate mechanized equipment or discharge or otherwise place any material within the wetted perimeter of any waters of the U.S. within the scope of the CWA (33 USC § 1251 et seq.). This includes wetlands, unless authorized by a permit issued by the USACE according to 33 USC § 1344 and, if required, by any state agency having jurisdiction over the discharge of materials into waters of the U.S. In the event of an unauthorized discharge:
  (a) Immediately prevent further contamination
  (b) Immediately notify the proper authorities
  (c) Mitigate damages as required
- Separate work areas, including material sources, by the use of a dike or other suitable barrier that prevents sediment, petroleum products, chemicals, or other liquid or solid material from entering the waters of the U.S. Use care in constructing and removing the barriers to avoid any discharge of material into, or the siltation of, the water. Remove and properly dispose of the sediment or other material collected by the barrier.
- Limit the combined grubbing and grading operations area to 30,000 m^2 of exposed soil at one time.
- Unless a specific seeding season is identified in the contract, apply permanent turf establishment to the finished slopes and ditches within 30 days.
- Apply temporary turf establishment or other approved measures on disturbed areas that will remain exposed for over 30 days.
- Construct and maintain erosion controls on and around soil stockpiles to prevent soil loss.
- Following each day's grading operations, shape earthwork to minimize and control erosion from storm water runoff.
- Inspect all erosion control facilities at least every 7 days, within 24 hours after more than 10 mm of rain in a 24-hour period, and as required by the contract permits.

- Maintain temporary erosion control measures in working condition until the project is complete or the measures are no longer needed. Clean erosion control measures when half full of sediment.
- For projects with water quality issues, the contractor shall be required to designate an individual, other than the project superintendent, whose primary responsibility is to serve as the water quality supervisor for the duration of the project. The water quality supervisor's responsibilities include directing the implementation of effective erosion/sediment control measures to control construction site drainage and water quality; directing the construction, operation, and dismantling of temporary erosion control features; and being available to modify site drainage and implement storm and winter shutdown procedures. Winter shutdown procedures are included in the erosion control plan.
- For projects with water quality issues, should a contractor's truck or other vehicle accidentally dump pollutants that could pollute any water body along the project, emergency action shall be taken to prevent contamination of the water body. The carrier of the spilled material is responsible for cleanup of spilled material, which includes reporting. The appropriate agencies are immediately informed of any such event. No in-stream fueling of any vehicle is permitted. In-stream activity is limited to that necessary to place structures and for wetland replacement measures. The contractor shall locate an oil storage facility that exceeds a certain capacity (as specified in Environmental Protection Agency [EPA] regulations) and where the occurrence of spills could contaminate water bodies along the proposal, the contractor shall comply with those EPA regulations in the preparation and implementation of a Spill Prevention Control and Countermeasure Plan.

3.8 Cultural Resources

Cultural resources include prehistoric resources, traditional cultural properties, and historical-period resources. Prehistoric resources are physical properties associated with human activities that predate written records and are generally identified as archaeological sites. Prehistoric resources can include village sites, temporary camps, lithic scatters, roasting pits/hearths, milling features, petroglyphs, rock features, and burials. Traditional cultural properties can include archaeological resources, buildings, neighborhoods, prominent topographic features, habitats, plants, animals, and minerals that Native Americans or other groups consider essential for the continuance of traditional cultures. Historical-period resources include resources that postdate the advent of written records in a region.

A cultural resources study was performed to address potential impacts associated with construction and operation of the proposed project. The purpose of the study was to identify all prehistoric and historical-period cultural resources within the study area containing the archaeological Area of Potential Effects (APE) for the project, to evaluate the significance of those resources within the APE, and to assess the potential project effects on historic properties. All sites identified within the APE were mapped and recorded in detail, and several were tested to determine the depth and complexity of subsurface deposits. The study was conducted in conjunction with extensive Native American consultation conducted by the County of Riverside, the FHWA, and the SBNF, and included Native American monitoring of the archaeological testing program. On the basis of that consultation, the County of Riverside and the FHWA requested preparation of an ethnobotanical study.

The cultural resources were evaluated in accordance with the requirements of the National Historic Preservation Act (NHPA) for eligibility for nomination to the National Register of Historic Places (NRHP). The cultural resources also were evaluated as "historical resources" eligible for listing in the California Register of Historical Resources (CRHR), as required by CEQA. The cultural resources report is entitled, *Along the Trail of Juan Babtiste and Juan Bautista de Anza: Cultural Resources Inventory and Evaluation of the Bautista Canyon Road Project (California Forest Highway 224),* dated December 2003 (SRI 2003). The ethnobotanical study is entitled, *Traditional and Contemporary Uses of Bautista Canyon Floral Resources*. The conclusions of both reports are summarized below. The complete reports, with an extensive historical background, are on file with the County of Riverside.

Area of Potential Effects

Studies to identify and evaluate cultural resources pursuant to the NHPA must carefully define the APE for the proposed undertaking. The regulations implementing the NHPA provide the following definition of APE:

> *Area of potential effects* means the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking [36 CFR 800.16(d)].

The APE for archaeological resources is defined as the area subject to ground-disturbing activities from construction and maintenance of the roadway, as well as portions of sites adjacent to the roadway that may be subject to increases in use leading to illicit artifact collection or excavation. This includes the road right-of-way (ROW), the footprint of cut and fill slopes, and a buffer of 5 m (16 ft), extending for the 13.2 km (8.2 mi) length of the project study area. The actual width of the APE ranges from approximately 15 m (49 ft) along straight sections of roadway with little or no cuts and fill, to as much as 80 m (263 ft) in areas with large cut or fill slopes adjacent to the road. The proposed pavement width is 8 m (26 ft).

The cultural resources field survey covered a study area 50 m (165 ft) wide on each side of the preliminary alignments. This study area, or survey area, was designed to encompass the APE for direct effects on archaeological resources once it was defined based on the 30 percent design completion.

Consultation with Native American tribes and traditional practitioners resulted in information that the project area contained plant resources used for basketry, medicinal purposes, and other cultural purposes. To more fully identify and evaluate these uses, an ethnobotanical study was prepared. The APE for the ethnobotanical study was defined by SBNF as extending 500 m (1,650 ft) on each side of the existing roadway (CSRI 2003).

3.8.1 Existing Conditions

Cultural Setting

The cultural setting of the project area includes prehistoric developments, description of ethnic groups and how Native American cultures developed through history, and historical land uses. The following sections summarize information provided in more detail in the cultural resources report on file with the County of Riverside (SRI 2003).

Prehistory

The general pattern of cultural development in the region is one of early hunting cultures appearing as early as 12,000 years ago, followed by the development of a diversified hunting and gathering subsistence system. Over time, emphasis on plant food resources increased somewhat, with a generalized hunting and gathering way of life persisting into historical times and characterizing the lifeway of the ethnographic inhabitants of the San Jacinto Mountains, and adjacent upland areas.

Early Holocene cultures date from about 12,000 to 7,000 years ago, and were adapted to the post-Pleistocene environment in which the megafauna had largely disappeared and a hotter, drier climate forced groups to settle near reliable water sources. The local expression of these early cultures, known as San Dieguito, was a hunting culture with a flaked-stone industry that included large flake-and-core scrapers, choppers, hammer stones, drills, and gravers. Prehistoric subsistence patterns began to show marked changes starting around 8,500 years ago, roughly corresponding to the transition between Early and Middle Holocene cultures. These changes were almost certainly in response to warming climatic conditions and the resulting changes in flora and fauna, and are visible in the archaeological record as a reduced number of projectile points, scrapers, and choppers, and an increased number of ground stone artifacts. Although hunting and fishing were not entirely replaced by plant processing, the relative importance of animals in the prehistoric diet decreased. During the latter part of the Middle Holocene, from 3,500 to 1,500 years ago, the subsistence base broadened, as indicated by the appearance of the mortar and pestle. Introduction of such innovations suggests an intensification of food production and an accompanying increase in population. By AD 500, clear changes in material culture become obvious. One of the most striking changes is the shift from the earlier atlatl-and-dart to the bow-and-arrow as the primary weapon system. Late Holocene cultures in southern California reflect both *in situ* cultural adaptations in response to environmental changes as well as outside influences from the influx of Shoshonean (Takic-speaking) populations from the desert regions.

In the study area, the occupation began prior to 300 BC, grew slowly, and increased dramatically after AD 1500, a pattern thought to reflect an increase in local population caused by an influx of people from the Colorado Desert following the desiccation of Lake Cahuilla (SRI 2003).

Ethnography and Ethnohistory[10]

The project study area is located in an area ascribed to the Cahuilla, whose ethnographic territory encompassed the San Gorgonio Pass, the San Jacinto Mountains, and the Coachella Valley to the east of the project study area. Aboriginally, the Cahuilla were hunters and gatherers who utilized both large and small game, as well as numerous plant resources for food. The ethnohistoric settlement pattern consisted of permanent villages located in proximity to reliable sources of water, and within range of a variety of floral and faunal food resources, which were exploited from temporary camp locations surrounding the main village. Each village of 75 to 200 people was occupied by one or more patrilineal[11] clans that belonged to one of two exogamous[12] moieties[13], the Wildcats (*tuktum*) or the Coyotes (*'istam*). Cahuilla villages were arranged according to ecological factors and a desire for privacy, with no standard form. Villages located along streams generally extended some distance along both banks, and those situated around springs were more clustered. Some desert villages had 25–50 houses scattered over a 7.5 to 12.5 km^2 (3 to 5 mi^2) area. The disruption of Native culture began with Spanish explorations in 1772 and culminated in the smallpox epidemics of 1862–1863 in the valleys and again in the mid-1870s in the mountains, along with the arrival of increasing numbers of American settlers in the mountains. In the 1870s, surviving members of Cahuilla clans in the Santa Rosa Mountains area gathered in the vicinity of hot springs in Anza Valley and formed a village. American settlers of the area knew this village, reported to have 857 residents in 1872, as Cahuilla. It formed the nucleus of the Cahuilla Reservation established in 1875. By 1969, membership had dwindled to 89, with 23 residents. Other reservations in the area with ties to the Bautista Canyon area include Soboba, established in 1883; Ramona, in 1893; and Santa Rosa, in 1907. All were created around areas that had been inhabited by the Cahuilla for generations. Of these, the Ramona Reservation is closest to the project alignment, located about a mile northeast of the southern terminus of the project.

Native Uses of Plants in Bautista Canyon

Many of the plants found in Bautista Canyon were used by the Cahuilla for food, medicine, and craft manufacture. Important staple foods were acorns, with those from black oak being favored; holly-leaved cherries; juniper berries; and yucca blossoms and stalks. California sagebrush, white and black sage, buckwheat, elderberry, yerba santa, and mugwort all had medicinal uses. Chamise was the preferred firewood and stalks of rush, sumac, and deer grass furnished materials for baskets. The results of the ethnobotanical study conducted for the project were that numerous plants growing in the Bautista Canyon study area were found to have both traditional and contemporary uses by the Cahuilla and neighboring groups. Of the 193 recorded plants found during surveys conducted for the proposed project, 64 have documented traditional uses among the Cahuilla. These include 26 species used for food; 19 used for utilitarian purposes, including basket weaving; 13 used for medicinal purposes; and 6 used for ritual purposes. During field trips and interviews, Cahuilla elders identified several

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[10] Ethnography is a branch of anthropology concerned with the description of ethnic groups. Ethnohistory is the scientic study of how cultures have developed through history.
[11] Describes family relationships traced through the male line, or societies in which only such relationships are recognized.
[12] Exogamy is the custom in some societies of marrying outside their people's own tribe, clan, or social group.
[13] Two halves into which society is divided for ritual and marriage purposes.

additional species that grow in Bautista Canyon but were not documented in the botanical surveys, either because they were outside of the survey area or perhaps were not visible during the time of the surveys.

History

The travel corridor incorporating what is now known as Bautista Canyon is perhaps best known historically for its role in the Juan Bautista de Anza expeditions that culminated in the founding of San Francisco. Anza passed through Bautista Canyon on several occasions between 1774 and 1776. Later, the canyon served as an important travel corridor between San Jacinto Valley and the high country now known as the Anza Valley and beyond. The canyon was possibly first used by cattlemen to move stock from the valley to mountain pastures following the drought years of 1862 to 1865. Tripp Flats, at the head of the canyon, was homesteaded sometime in the late 1870s. Eventually a wagon road, later improved into an automobile road, was constructed through the canyon, linking the valley and mountain areas more closely. A more detailed discussion of the history of the Bautista Canyon is provided in the cultural resources report on file with the County of Riverside (SRI 2003).

Identified Resources

Archaeological Resources

As a result of the archaeological field survey, 24 cultural resource localities were identified in the 100 m (328 ft) wide project study area. Of the total, 21 were formally recorded as archaeological sites.[14] Of the 21 formally recorded sites, 15 are late prehistoric or protohistoric[15] sites of Native American origin, and the remaining 6 sites date from the historical period[16]. The recorded sites are listed and briefly described in Table 3.8-1. One previously recorded site could not be relocated. Two isolated artifacts also were identified within the study area. One is a prehistoric ceramic vessel previously collected by SBNF personnel, and the other is a historical-period plumb bob collected by SRI staff (Table 3.8-1). A detailed description of the sites can be found in the cultural resources report on file with the County of Riverside.

Juan Bautista de Anza National Historic Trail

Based on meticulous research in the 1920s, it has been determined that Bautista Canyon was identified as Cañada de San Patricio, part of the route followed by expeditions led by Juan Bautista de Anza in 1774 and 1776. One of their campsites, also called San Patricio, has been identified as Tripp Flats, located on private land southwest of the study area. The diaries kept by members of the Anza expeditions – Anza himself, and Frs. Garcés, Díaz, and Font – were carefully reviewed in an effort to determine the route followed by the parties. All indications are

[14] Location of a significant event, a prehistoric or historic occupation or activity or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural, or archaeological value regardless of the value of any existing structure; and consisting of at least three assoicated artifacts or a single feature at least 45 years of age.
[15] Proto historic refers to the period immediately prior to actual historic contact, when some historical influences from Euroamericans, including diseases as well as trade goods, were affecting Native American culture.
[16] From AD 1772 to present time.

that, after leaving the campsite at Tripp Flats, they descended down the streambed of Bautista Creek. On one return trip, a member of the party noted that the streambed had become clogged with rocks as a result of heavy rains. This suggests that any physical remnants of the "Anza trail" would likely be short-lived and, indeed, no intact traces of a trail or any other features or artifacts that could be tied to Anza's passages were identified during the field survey.

In August 1990, Congress passed Public Law 101-365 making the Juan Bautista de Anza National Historic Trail (Anza NHT) a component of the National Trails System, to be administered by the National Parks Service (NPS). The Anza NHT is an historic route that consists of "recreational trail" components and "auto route" components. A designated recreational trail consists of existing trails that are linked up along the historic route. Linked trails serve as a Recreational Trail Retracement Route. Of the 1,200 mi length of the Anza NHT from Nogales, Arizona, to San Francisco, California, 161 mi are components that cross federal lands. The historic route enters Riverside County from the south via Coyote Canyon, crosses the Cahuilla Indian Reservation, and descends to the Hemet/San Jacinto area via Bautista Canyon. The route follows the San Jacinto River to Mystic Lake, then through the Bernasconi Pass near Perris Lake State Recreation Area, passes through March Air Force Base to enter the urbanized area of Riverside today. It crosses the Santa Ana River and proceeds westerly through Pedley toward Mission San Gabriel (NPS1996: C-17).

The only trail component through a national forest is the 8 mi segment of Bautista Canyon Road that passes through the SBNF (i.e., the location of the proposed project). Here, the Anza NHT consists of a designated auto route (marked) but no recreational trail. Because this currently unpaved section of the trail route crosses federal lands in an area that is little changed from the 1774-1776 landscape that Anza's expeditions traversed, it has been identified as 1 of 17 "high-potential" segments "to interpret the trail's historical significance and to provide opportunities for high-quality recreation" (NPS 1996: 1-2, 20-23). The designated auto route (marked) through Bautista Canyon follows S22 to SR 79 north, to SR 371 west, and to Bautista Canyon Road. Bautista Canyon Road becomes Fairview Avenue. The auto route follows Fairview Avenue to Florida Avenue, turns west on Florida Avenue to the Ramona Expressway to I-215 northwest, to SH 60.

There are no existing trails that serve the purpose of a recreational trail retracement route through Bautista Canyon. The City of Riverside Trails Master Plan identifies trails which approximate the historic route and which connect to the existing Santa Ana River National Recreation Trail. This river trail could be used to skirt highly urbanized areas in San Bernardino County to connect with the County of Los Angeles Schabarum Trail via planned open space on the San Bernardino-Orange County line south of the Chino Hills. According to the Comprehensive Management and Use Plan for the Anza NHT, these trail connections could be marked as recreational links to the Anza NHT and would provide an off-road recreational experience of an environment somewhat similar to that Anza experienced (NPS 1996: C-17).

Although the Anza NHT, in its segment along Bautista Canyon Road, appears to cross the probable route followed by Anza in the portions of the canyon downstream from the CDC Bautista Conservation Camp and out of the project area, and in the vicinity of stream crossings, no intact cultural resource properties that could be associated with Anza's use were identified in those areas. Thus, the Anza NHT in this project area is not a historical resource subject to consideration under the NHPA.

Bautista Canyon Historical Landscape

The portion of Bautista Canyon within the project study area has changed very little since construction of the existing road in 1914–1917, and other than that modification, it still represents the historic landscape present during use of the area by Native Americans and early explorers such as Anza. The landscape in Bautista Canyon is considered by Native Americans to be an ethnographic landscape that includes former residential and activity areas now recorded as archaeological sites, as well as floral resources used both traditionally and currently for basketry materials, medicinal purposes, food, and manufacture of useful items.

NHPA Historic Properties and CEQA Historical Resources

Section 106 of the NHPA requires federal agencies to take into account the effects of an undertaking on "historic properties," defined as cultural resources included in or eligible for listing in the NRHP. As lead federal agency, the FHWA must make a determination of NRHP eligibility for cultural resources prior to making a finding of effect, according to the following criteria:

> *The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling and association, and:*
>
> *(a) that are associated with events that have made a significant contribution to the broad patterns of our history; or*
> *(b) that are associated with the lives of persons significant in our past; or*
> *(c) that embody the distinctive characteristics of a type, period, method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack distinction; or*
> *(d) that have yielded, or may be likely to yield, information important to prehistory or history [36 CFR 60.4].*

If cultural resources do not meet the above criteria, they are not historic properties and are not further considered in the Section 106 process.

Under state law, CEQA requires lead agencies to evaluate whether a project may cause a substantial adverse change in the significance of a "historical resource" (PRC § 21084.1). A historical resource is defined by criteria similar to those listed above (PRC § 5024.1) as eligible for listing in the CRHR and includes resources determined eligible for listing in the NRHP (CCR § 4851[a][1]). Thus, the County may apply the determinations of NRHP eligibility by

FHWA to its findings of historical significance under CEQA. Cultural resources determined to be not eligible for listing in the NRHP might still qualify as historical resources under CEQA, however, and thus a separate finding that they are not historical resources must be made in order to exclude them as such.

Cultural Resources Determined Eligible for Listing in the NRHP and CRHR

Bautista Canyon Archeological District:

The pattern of prehistoric and protohistoric archaeological sites, along with specific and general plant collecting areas important in Native American cultural traditions, reflects Native American use of a landscape that retains integrity of location, setting, materials, feeling, and association that is hardly altered from its period of significance. Therefore, the prehistoric and protohistoric sites recorded in the archaeological studies for this project (SRI 2003), along with several previously recorded archaeological sites (RIV-1889, RIV-3090, RIV-3091, and RIV-3092) immediately adjoining the study area in the CDC Bautista Conservation Camp, are considered elements of an archaeological district.

Prehistoric and protohistoric archaeological resources listed in Table 3.8-1 are eligible for listing under Criterion (d) of the NHPA because they have the potential to yield information important to prehistory or history (SRI 2003). Sites BC-3, BC-4, BC-6, BC-7, BC-14, and BC-15/20 individually and collectively contain important information on chronology, settlement and subsistence, and Native American land use of Bautista Canyon. Sites BC-8 and BC-13 contribute important information regarding the patterning of plant resources collecting and processing, and Sites BC-1, BC-9, BC-10, BC-16, BC-18, and BC-21 contribute information related to lithic technology and exploitation of lithic resources in the canyon.

Anza NHT Historic Transportation Corridor:

Bautista Canyon Road (BC-23) is a historical-period cultural resource in its own right, having been constructed during 1914–1917, and a portion of an apparent earlier alignment (BC-22) may date to the 1890s. These two historic period sites listed in Table 3.8-1 are eligible for listing under Criteria (a) and (b) of the NHPA because of their association with events and persons that have made significant contributions to our history. Because the historic landscape of Bautista Canyon is virtually intact and possesses integrity of setting, feeling, and association, those portions of sites BC-23 (Bautista Canyon Road) and BC-22 (Pre-1918 wagon road segment) that are situated in the APE are considered contributing elements of a larger historic transportation corridor known as the Juan Bautista de Anza National Historic Trail. The period of significance for BC-23 extends from 1774-1917 and is considered significant at local, state, and national level, while the period of significance for BC-22 extends from 1890-1925 and is considered significant at the local level. The Juan Bautista de Anza National Historic Trail transportation corridor is a dynamic cultural feature evolving from prehistoric Native American use, passage of the Anza expedition, use by cattlemen to move stock from the valley to mountain pastures, use eventually as a wagon road, and later improved to an automobile road.

Table 3.8-1
Bautista Canyon Road Existing Cultural Resources

CHRIS[1] Designations	Field No(s).	SBNF No.	Within APE[1]?	Eligibility for NRHP[1]	Description
P-33-13174	–	05-12-55-238	yes	Yes	Bautista Canyon Archaeological District and Ethnobotanical Traditional Cultural Property.
P-33-1889 CA-RIV-1889	–	05-12-55-27	no	Yes	Previously recorded lithic scatter located within CDF Bautista Conservation Camp.
P-33-3090 CA-RIV-3090	–	05-12-55-125	no	Yes	Previously recorded bedrock mortar located within CDF Bautista Conservation Camp.
P-33-3091 CA-RIV-3091	–	05-12-55-124	no	Yes	Previously recorded late-prehistoric seasonal camp located within CDF Bautista Conservation Camp.
P-33-3092 CA-RIV-3092	–	05-12-55-123	no	Yes	Previously recorded late-prehistoric seasonal camp and basketry plant collecting area located within CDF Bautista Conservation Camp.
P-33-13175 CA-RIV-7340	BC-7	05-12-55-239	yes	Yes	Activity area with a bedrock milling feature, 10 metates, 3 manos, an extensive lithic scatter including 2 biface fragments. Road through site leads to CA-RIV-3092.
P-33-13176 CA-RIV-7341	BC-8	05-12-55-240	no	Yes	Bedrock milling features (2).
P-33-13177 CA-RIV-7342	BC-9	05-12-55-241	yes	Yes	Lithic resource procurement and reduction area with shallow subsurface deposit.
P-33-13178 CA-RIV-7343	BC-6	05-12-55-242	no	Yes	Extensive midden area in with roasting features, subsurface deposit up to 50 cm (20 in) deep; bedrock mortar with pestle; large stands of *Juncus textilis*
P-33-13179 CA-RIV-7344/H	BC-10	05-12-55-243	no	Yes	Lithic scatter with historical-period bottle base.
P-33-13180 CA-RIV-7345H	BC-12	05-12-55-244	no	No	Early 20th century temporary camp consisting of scatter of cans and bottles; possibly associated with old road to Tripp Flats.
P-33-13181 CA-RIV-7346	BC-21	05-12-55-245	no	Yes	Lithic scatter from single reduction episode.
P-33-13182 CA-RIV-734/H	BC-4	05-12-55-141	yes	Yes	Bedrock milling feature, metate, and lithic scatter; tested, no subsurface deposit in APE; large area of *Juncus textilis* at east edge of site along creek.
P-33-13183 CA-RIV-7348	BC-13	05-12-55-246	yes	Yes	Bedrock milling feature with 2 mortars, 3 slicks, on large boulder dislodged during road construction.
P-33-13184 CA-RIV-7349	BC-14	05-12-55-247	no	Yes	Temporary camp consisting of bedrock milling features, midden, lithic scatter, and pottery.
P-33-13185 CA-RIV-7350	BC-15/ BC-20	05-12-55-248 (was –140, Lotus C)	no	Yes	Temporary camp with numerous bedrock features (mortars and metate slicks), pestle and several mano fragments, pottery sherd, and quartz flakes.
P-33-13186 CA-RIV-7351	BC-3	05-12-55-140 Loci A and B	yes	Yes	Large habitation site on both sides of road but mostly on northeast side; contains midden thermal features, house pits, bedrock milling features, and artifact scatter; tested, cultural deposit to 50 cm (20 in) in depth.
P-33-13187 CA-RIV-7352H	BC-22	05-12-55-249	yes	Yes	Pre-1918 road alignment enters APE through BC-3.
P-33-13188 CA-RIV-7353	BC-16	05-12-55-250	no	Yes	Lithic scatter
P-33-13189 CA-RIV-7354	BC-1	05-12-55-103	yes	Yes	Lithic procurement and reduction site on both sides of road; large flaked stone scatter, cores, and bifaces.
–	BC-2	05-12-55-102	no	No	Bedrock milling feature and lithic scatter recorded by SBNF in 1980; not relocated.

CHRIS[1] Designations	Field No(s).	SBNF No.	Within APE[1]?	Eligibility for NRHP[1]	Description
P-33-13190 CA-RIV-7355	BC-18	05-12-55-251	yes	Yes	Lithic scatter.
P-33-13191 CA-RIV-7356H	BC-19	05-12-55-252	no	No	Early 20th-century trash scatter with glass and cans.
P-33-13192 CA-RIV-7357H	BC-11	05-12-55-253	no	No	1950s automobile dump.
P-33-13193 CA-RIV-7358H	BC-17	05-12-55-254	yes	No	Early–mid-20th century farmstead.
P-33-13194 CA-RIV-7359H	BC-23	05-12-55-255	yes	Yes	Current road alignment constructed 1914–1917; portion of the Juan Bautista de Anza National Historic Trail automobile route.
Isolated Resources					
P-33-13195	BC-5	05-12-55-139	no	No	Complete olla found during fire break construction in 1989 Bautista Burn; collected by SBNFS. Because the olla has been collected and removed from its setting, it lacks integrity and is not considered a contributing element to the archaeological district.
P-33-13196	BC-24	05-12-55-13196	yes	No	Plumb bob; collected by SRI.

Source: SRI 2003

1. CHRIS – California Historical Resources Information System, Primary (P-33- nnnnn) numbers and trinomial site numbers (CA-RIV-nnnn); APE – Area of Potential Effects for direct effects on archaeological sites; NRHP – National Register of Historic Places

Bautista Canyon Ethnobotanical Traditional Cultural Property:

The ethnobotanical resources of the canyon and the ethnographic landscape that contains them, and the associated prehistoric and protohistoric archaeological resources, are important in maintaining the cultural identity of the local Cahuilla people and other traditional practitioners. The Cahuilla have historically and still use numerous plants for food, medicine, construction, and utilitarian purposes. The Cahuilla and other tribes in the area value the isolated setting and serenity with the low traffic volume that exists in Bautista Canyon, where prayers are said before they collect plants. Tribal members often come to Bautista Canyon to collect plants. The unpaved segment of Bautista Canyon Road is located mainly along the bottom of the canyon near Bautista Creek, which provides convenient access to plant collecting areas. Table 3.8-2 provides a brief summary of each plant species that were used by the Cahuilla.

Table 3.8-2
Traditional Use of Canyon Plants

Botanical Name	Common Name	Traditional Use
Abronia villosa	Sand verbena	Children's game
Adenostoma fasciculatum	Chamise	Construction material and medicine
Adenostema sparsifolium	Redshank, ribbonwood	Building materials, firewood, and medicine
Anemopsis californica	Yerba mansa	Medicine
Apocynum canabinum	Indian hemp	Medicine and traditional goods
Arctostaphylos	Manzanita	Food, medicine, construction, tools,

Botanical Name	Common Name	Traditional Use
		firewood
Artemisia ludoviciana	Silver wormwood	Construction material and basketry
Artemisia tridentate	Big sagebrush	Food, construction, medicine, and air purifier
Asclepias	Milkweed	Gum, food, and construction material
Astragalus	Milkvetch	Spice
Avena barbata	Slender wild oat	Food
Baccharis viminea	Mulefat	Medicine and construction material
Brassica sp.	Wild mustard	Food
Bromus tectorum	Cheatgrass	Food
Calochortus concolor	Mariposa lily	Food
Capsella bursa-pastoris	Shepherd's purse	Food and medicine
Ceanothus	California lilac	Firewood
Centarium venustum	Canchalagua	Medicine
Chenopodium sp.	Pigweed	Food
Chenopodium californicum	Pigweed	Personal hygiene products and medicine
Chlorogalum pomeridianum	Soap plant	Personal hygiene products and stupefying agent to catch fish
Croton californicus	California croton	Medicine
Cucurbita foetidissima	Calabazilla, wild squash	Soap and medicine
Cuscuta californica	California dodder	Scouring pad
Datura wrightii	Jimsonweed	Hallucinogenic and medicine
Dichelostemma/Brodiaea M.	Wild hyacinth	Food and personal hygiene products
Distichlis spicata	Saltgrass	Salt and brushing material
Dudleya sp.	Live-forever, pygmy weed	Food
Elymus condensatus	Rye grass	Traditional goods and construction material
Ephedra nevadensis	Mormon tea	Tea, medicine, and food
Equisetum	Scouring rush	Medicine and cleaning agent
Eriodyction crassifolium/trichocalyx	Woolly yerba santa	Medicine
Eriogonum	Buckwheat	Medicine
Eriophyllum confertiflorum	Golden yarrow	Food and medicine
Erodium cicutarium	Red-stern Filaree	Food

Botanical Name	Common Name	Traditional Use
Escholzia californica	California poppy	Personal products and medicine
Ferocactus cylindraceus	Barrel cactus	Food, water, and cooking vessel
Gutierrezia californica/ Microcephalia	California matchweed	Medicine
Heteromeles arbutifolia	Toyon	Food
Hordeum murinum	Barley	Food
Juncus	Rush	Baskets
Juniperus californica	Juniper	Food, medicine, clothing, and construction material
Justicia californica	Chuparosa	Food
Larrea tridentate	Creosote bush	Medicine
Lathyrus laetiflorus	Wild pea greene	Food
Lotus scoparius	Deerwood	Construction material
Lupinus sp.	Lupine	Possibly for food
Marrubium vulgare	Horehound	Medicine
Medicago polymorpha/hispida	Burclover	Food
Muhlenbergia rigens	Deer-grass	Baskets
Nicotina	Tobacco	Smoking, ritual use, and medicine
Scripus	Bulrush	Food, construction material, and traditional goods
Solanum xanti/Douglasii	Purple nightshade	Medicine and dyes
Solidago californica	Goldenrod	Personal hygiene products and medicine
Simmondsia chinesis	Jojoba	Food
Trichostema lanatum	Woolly bluecurls	Medicinal tea
Typha latifolia	Broad-leaf Cattail	Food, medicine, construction material and ceremonial bundles
Urtica dioica/Holosericea	Stinging nettle	Food, tools, traditional goods, and medicine
Yucca whipplei *Yucca schidigera*	Spanish bayonet Mohave yucca	Food Food, construction materials, traditional goods, personal hygiene products, and jewelry.
The following species are considered sensitive or endangered and the Cahuilla have expressed concern that they be protected; however, these plants were not observed within the project study area:		
Caulanthus simulans	Payson’s jewel-flower	Use unknown.
Dodecahema leptoceras	Slender-horned	Use unknown

Botanical Name	Common Name	Traditional Use
	Spineflower	
Eriastrum densifolium ssp. *Sanctorum*	Santa Ana River wooly-star	Use unknown
Monardella macrantha ssp. *Hallii*	Hall's monardella	Use unknown
Scutellaria bolanderi ssp. *Austromontana*	Southern skullcap	Use unknown

Source: Traditional and Contemporary Uses of Bautista Canyon Floral Resources by Cultural Systems Research, Inc. 29 August 2003.

Thus, the canyon is considered to be eligible for listing in the NRHP as a traditional cultural property (TCP) under Criterion (c) of the NHPA (CSRI 2003). The boundaries of the TCP minimally include the APE investigated for the ethnobotanical study (i.e., 500 m [1,640 ft]) on each side of the road for the length of the study corridor. Although Native Americans consulted during the course of cultural resources studies consider the TCP to include the entire canyon, it is not feasible to define the boundaries beyond the area investigated (i.e., the ethnobotanical APE).

Taking both the previously recorded and newly identified archaeological sites into account, along with the ethnobotanical resources and the landscape in which they occur, the boundaries of the Bautista Canyon Archaeological District and Ethnobotanical Traditional Cultural Property include all the cultural resources located within 500 m (1,640 ft) of the existing road in the study area. This boundary encompasses all of the prehistoric and protohistoric archaeological resources, as well as specific plant collecting areas, identified in current and previous studies in the project area.

Resources determined eligible for listing in the NRHP also are considered to be "historical resources" eligible for listing in the CRHR.

<u>Cultural Resources Determined Not Eligible for Listing in the NRHP or CRHR</u>

Historical period resources (a roadside camp [BC-12], a trash scatter [BC-19], a series of junked automobiles used for erosion control [BC-11], and a small farmstead [BC-17]) also do not meet the criteria for eligibility for either the NRHP or the CRHR, nor are they considered to be unique archaeological resources, and thus are not considered contributing elements to the district. They have been recorded and have no further potential to contribute information important to history, nor are they associated with important events or persons. Because they have been collected and removed from their settings, the ceramic olla recorded as BC-5 and the plumb bob recorded as BC-24 lack integrity and, therefore, are not considered contributing elements to the archaeological district.

3.8.2 Regulatory Setting

Federal

The provision of funding for the Bautista Canyon Road improvements through the FLHP by FHWA is considered an "undertaking" subject to compliance with Section 106 of the NHPA of 1966, as amended (16 USC § 470), and its implementing regulations, published as 36 CFR 800. As lead federal agency, FHWA must take into account the effects of the proposed undertaking on "historic properties"; that is, cultural resources included in or eligible for listing in the NRHP. To accomplish this, the agency must first identify cultural resources within the APE for the undertaking, and then evaluate the significance of the resources to determine whether they are historic properties. The Section 106 process of identification and evaluation also requires Native American consultation. Determinations of NRHP eligibility and findings of effect under Section 106 are made by the lead federal agency in consultation with Indian tribes and the State Historic Preservation Officer (SHPO). FHWA and the project SEE team have conducted extensive consultation with Native American groups, including the Ramona Band of Cahuilla Indians, Soboba Tribe, Cahuilla Band of Mission Indians, Pechanga Band of Mission Indians, Southern California Indian Basketweavers Organization, Traditional Practitioners, and Santa Rosa representatives. Table 1.2-2 lists meeting dates and issues discussed.

The undertaking may also be subject to compliance with Section 4(f), first enacted as part of the DOT Act of 1966, and amended in the Federal-Aid Highway Act of 1968. In January 1983, as part of an overall recodification of the DOT Act, Section 4(f) was amended and codified in 49 USC § 303. Still commonly referred to as Section 4(f), Section 303(c) requires that:

> *The Secretary [of Transportation] may approve a transportation program or project [...] requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only if:*
>
> *(1) there is no prudent and feasible alternative to using that land; and*
>
> *(2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.*

State

The Bautista Canyon Road realignment also is considered a project subject to CEQA (Public Resources Code [PRC] § 21000 *et seq.*) and the CEQA Guidelines (California Code of Regulations [CCR] § 15000 *et seq.*), as amended to date. The County, as lead agency for the proposed project under CEQA, must determine whether the project will have a significant impact on the environment. For potential impacts to an archaeological or historical resource to be considered significant under CEQA, the resource in question must be determined to be a "historical resource"; that is, one that is listed in or determined eligible for listing in the CRHR, included in a local register of historical resources, or determined by the lead agency to be a historical resource. The term "historical resource" may apply to archaeological sites. However, for an archaeological site that does not meet the criteria for consideration as a "historical resource," a determination must be made as to whether it qualifies as a "unique archaeological resource" (PRC § 21083.2[g]).

A cultural resource property that is listed in, or determined eligible for, the NRHP also is listed automatically in the CRHR (CCR § 4851[a][1]). Thus, for purposes of this study, cultural resources are evaluated for significance with reference to their eligibility for listing in the NRHP, according to the criteria published in 36 CFR 60.4.

Local

<u>SBNF Land and Resource Management Plan (LRMP) – Historical and Cultural Resources Goal</u>

- *Inventory, protect, evaluate, and enhance historical and cultural resources in accordance with legislative and administrative direction.*

3.8.3 Thresholds of Significance

Federal Thresholds

Section 106 of the NHPA requires federal agencies to take into account the effects of an undertaking on historic properties, defined as cultural resources included in or eligible for listing in the NRHP (36 CFR 800.16(l)). Only those resources determined to be historic properties and within the APE are considered subject to the effects of an undertaking.

The lead federal agency must apply the criteria of adverse effects in consultation with the SHPO and any Indian tribe that attaches cultural significance to the identified historic properties. An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects may include reasonably forseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative (36 CFR 800.5 (a)(1)).

State Thresholds

Under CEQA, the project would have a significant impact on the environment if it would:

- cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines §15064.5;
- cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines § 15064.5; ;

- directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- disturb any human remains, including those interred outside formal cemeteries.

3.8.4 Environmental Consequences

The width of the APE, as described in the introduction to this section, varies slightly at various locations among the three alternatives; however, any given archaeological site is either in or out of the APE for all the alternatives. Seven prehistoric and protohistoric sites and two historic period sites determined to be historic properties and located within the APE are subject to adverse effects. These are: BC-7, BC-9, BC-22, BC-23, BC-4, BC-13, BC-3, BC-16, and BC-1. Sites BC-23 (Bautista Canyon Road) and BC-22 (Pre-1918 wagon road segments) will be subject to adverse effects resulting from alteration or diminishing of the setting, feeling, and association of these historic properties with the Anza NHT transportation corridor. Preliminary designs would have affected site BC-6 also; however, the portion of the project in the vicinity of that site has been realigned to avoid the site completely. Plant collecting areas within the Ethnobotanical TCP will also be adversely affected. Details of project effects from each alternative are considered below.

3.8.4.1 Alternative A

Potential direct effects to archaeological sites under Alternative A are listed in Table 3.8-3. The area disturbed is the portion(s) of each site within the APE for that alternative, including the 5-m buffer area.

Table 3.8-3
Site Areas Disturbed by Alternative A

Site	BC-7	BC-9	BC-4	BC-13	BC-3	BC-16	BC-1	BC-22	BC-23
Area disturbed	373 m^2	206 m^2	918 m^2	35 m^2	4,088 m^2	263 m^2	1,498 m^2	63 m^2	65,327 m^2

The proposed project design has been adjusted in several locations to avoid direct adverse effects to known collecting areas for basketry plants, particularly with regard to *Juncus* stands located at sites BC-6 and BC-4. However, plant-collecting areas will be affected by changed access as a result of turnouts being removed, along with higher speeds on the roadway, making it more difficult for traditional practitioners to pull off the road to collect plants. The proposed project would also introduce noise and visual intrusions that will adversely affect the serenity currently associated with plant gathering in Bautista Canyon by Native Americans, thus diminishing the integrity of the setting, feeling, and association of the TCP. Potential effects to these historic sites could be mitigated to below a level of significance (under CEQA) with the implementation of mitigation measures as described in Section 3.8.5.

Implementation of Alternative A could result in potential adverse effects to human remains interred outside formal cemeteries if any remains are exposed during site excavation and grading. These impacts would be mitigated to below a level of significance (under CEQA) with the implementation of mitigation measures as described in Section 3.8.5.

SBNF Land and Resource Management Plan (LRMP)

Alternative A would be consistent with the SBNF LRMP's historical and cultural resources goal to "…*Inventory, protect, evaluate and enhance historical and cultural resources in accordance with legislative and administrative direction."* The Alternative A alignment was selected to avoid existing sensitive cultural resource sites. The cultural resources report included cultural resources records, checks, literature review and archival research, and an intensive archaeological survey of the study area that encompassed the APE for archaeological resources. The study was conducted in conjunction with extensive Native American consultation and included Native American monitoring of the archaeological testing program. As a result of that consultation, an ethnobotanical study for the project study area was also prepared. Therefore, the proposed action would be consistent with the SBNF LRMP's historical and cultural resources goal.

A positive benefit of the proposed Bautista Canyon Overlook area is that it would enhance historical and cultural resources by providing an area for motorists and SBNF users to stop and enjoy expansive views of Bautista Canyon. The conceptual design for the overlook area includes a pullout area with parking for five vehicles, an ADA-accessible pathway to the overlook area, and an interpretive sign display (see Figure 2.2-5). The interpretive display would provide visitors with information about the Juan Bautista de Anza NHT and a cultural history to include Native Americans who inhabited the Bautista Canyon area thousands of years ago.

3.8.4.2 Alternative B

The direct adverse effects to historic properties and the Ethnobotanical TCP would be similar to those described for Alternative A. Alternative B would be consistent with the SBNF LRMP's historical and cultural resources goal and would also result in the same positive benefit as described under Alternative A. Potential direct effects to archaeological sites under Alternative B are listed in Table 3.8-4. The area disturbed is the portion(s) of each site within the APE for that alternative, including the 5-m buffer area.

Table 3.8-4
Site Areas Disturbed by Alternative B

Site	BC-7	BC-9	BC-4	BC-13	BC-3	BC-16	BC-1	BC-22	BC-23
Area disturbed	305 m^2	206 m^2	1,015 m^2	35 m^2	4,106 m^2	241 m^2	1,498 m^2	70 m^2	55,353 m^2

3.8.4.3 Alternative C

The direct adverse effects to historic properties and the Ethnobotanical TCP would be similar to those described for Alternative A. Alternative C would be consistent with the SBNF LRMP's historical and cultural resources goal and would also result in the same positive benefit as described under Alternative A. The direct effects to archaeological and historic sites under

Alternative C are listed in Table 3.8-5. The area disturbed is the portion(s) of each site within the APE for that alternative, including the 5-m buffer area.

Table 3.8-5
Site Areas Disturbed by Alternative C

Site	BC-7	BC-9	BC-4	BC-13	BC-3	BC-16	BC-1	BC-22	BC-23
Area disturbed	305 m^2	206 m^2	918 m^2	35 m^2	4,088 m^2	263 m^2	1,498 m^2	63 m^2	62,283 m^2

3.8.4.4 Alternative D

Under the No Action alternative, improvements to Bautista Canyon Road would not occur. Existing conditions would remain the same as those described above in Section 3.8.1. Therefore, adverse effects to historic properties would not occur as a result of implementation of Alternative D. Degradation of historic sites by unauthorized users would continue to occur, as would ongoing erosion and disturbance from grading during road maintenance.

3.8.5 Mitigation

The following mitigation measures would be implemented to reduce adverse effects to historic properties and historical resources to below a level of significance:

- In consultation with Native American tribes, the SBNF, NPS, State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation, prepare a Memorandum of Agreement (MOA) according to the provisions of the NHPA (36 CFR 800.6).
- The MOA should contain provisions for the FHWA project engineer and the County of Riverside to prepare and implement mitigation measures for archaeological sites subject to direct adverse effects. The measures should address data recovery from imperiled features and cultural deposits in affected site areas, archaeological monitoring of sensitive areas for unanticipated discoveries during construction, Native American monitoring of project-related archaeological activities, and curation of all recovered cultural materials in a federally approved repository.
- The MOA also should address issues of protecting archaeological sites and collecting areas for basketry materials from degradation by unauthorized uses, while providing for access to qualified researchers, traditional practitioners, and agency staff.
- Any revegetation plan or visual treatment plan for the project should be prepared and implemented in consultation with traditional practitioners and designed to enhance the growth and distribution of desirable species and minimize changes in the canyon setting of the project.
- If human remains are discovered, work shall halt in that area and procedures set forth in the California Resources Code (§ 5097.98) and State Health and Safety Code (§ 7050.5) shall be followed by the archaeological monitor after notification to the County coroner by the FHWA project engineer. If Native American remains are present, the County coroner shall contact the Native American Heritage Commission to designate a Most Likely Descendant, who will arrange for the dignified disposition and treatment of the remains. Ground-

disturbing activities shall be allowed to resume in the area of discovery upon completion of the above requirements, to the satisfaction of the FHWA project engineer.

3.9 Hazardous Materials

This section discusses existing conditions and potential impacts associated with the disturbance and contact with hazardous materials located within the study area. Where impacts have been identified, mitigation measures are provided.

3.9.1 Existing Conditions

An Initial Site Assessment (ISA) was performed for the project area in April 2002 (AMEC 2002c). The findings are summarized below in Table 3.9-1. The objective of the ISA was to identify areas of potential hazardous material contamination associated with previous or ongoing, on- and off-site activities. The assessment was based on discernible visual observations and on documented present and historic uses of the properties adjacent to the study corridor. The ISA was performed in general conformance with the scope of the Caltrans Environmental Branch Guidelines for Hazardous Waste Studies and the American Society for Testing and Materials (ASTM) Standard E 1527-00. This section summarizes the ISA document. The complete document is available for public review at the Riverside County Administration Building, Transportation Department; also see Volume II, Appendix I.

<u>Hazardous Substance, Petroleum Product, and Hazardous Waste Storage, Handling, and Disposal</u>

Based on observations made during the site reconnaissance, evidence of potential hazardous substance and petroleum product release, and/or disposition was observed at several of the open dumping areas along Bautista Canyon Road located at Kilometer posts 2.2, 3.6, 4.8, and 7.3 (mile posts 1.4, 2.2, 3.0 and 4.5) as described in Table 3.9-1. In addition, staining and burning were found at Kilometer posts 2.2 and 3.6 (mile posts 1.4 and 2.2).

<u>Storage Tank Management</u>

There are no observed aboveground storage tanks (ASTs) or underground storage tanks (USTs) currently along Bautista Canyon Road. However, a review of regulatory agency database listings and contact with regulatory agencies indicate that USTs are registered to the Laborers School located at 36401 Tripp Flats Road, Anza, 0.2 km (0.01 mi) southwest of the site and outside of the project construction area. These tanks are not within the study area and, thus, would not be affected by project activities.

Table 3.9-1
Kilometer Post Site Observations

Kilometer post* (Mile post)	Observations
0.0– 0.5 (0.0 – 0.3)	Power lines adjacent to west side of road with capacitors (owned by Anza Electrical Cooperative). Runs westward after MP 10.6.
0.6 (0.4)	Fiber-optic cable posts (owned by Verizon) located along the roadway from MP 10.3 to MP 18.5 approximately every 0.9 m (3 ft).
2.0 (1.2)	Storm pipe located under road; discharges west of road.
2.0 (1.2)	Road washout; evidence of erosion control (silt fencing).
2.2 (1.4)	Evidence of open dumping (furniture, scrap metal, trash, etc.). Extends approximately 9 to 15 m (30 ft to 50 ft) downhill in a westerly direction and approximately 15 m (50 ft) north along the roadway.
2.2 (1.4)	Four 1-gallon metal denatured alcohol containers dumped in culvert south of “main dump.”
2.2 (1.4)	White, powdery substance was observed to have leaked down the hillside toward the culvert.
3.0 (1.9)	Mattress and box spring dumped next to Bautista Creek on west side of roadway.
3.3 (2.1)	Evidence of open dumping (decomposing furniture) on east side of roadway.
3.6 (2.2)	Evidence of open dumping – approximately 15 quart-size motor oil containers, five 1-gallon antifreeze containers – on east side of roadway. Also evidence of open burning within the same area.
4.1 (2.5)	Evidence of open dumping (trash and front end of automobile) on east side of roadway.
4.3 (2.7)	Dumped sofa on east side of roadway.
4.6 (2.9)	Dumped chair on east side of roadway.
4.8 (3.0)	Evidence of open dumping (futon, household wastes, washer and dryer, paint cans, motor oil, and miscellaneous debris) on east side of roadway.
5.1 (3.2)	Evidence of open dumping (gutter, box with used filters, miscellaneous debris) on west side of road.
5.1 (3.2)	Dumped sofa on east side of roadway.
5.6 (3.5)	Evidence of open dumping (tire and motor oil containers) on east side of road.
6.1 (3.8)	Evidence of open dumping (tire, crushed concrete, sofa, etc.) on east side of road.
6.3 (3.9)	Evidence of open dumping (cans and cardboard debris) on east side of road.
6.6 (4.1)	Dumped tires on east side of roadway.
6.8 (4.2)	Approximately 15 dumped tires on east side of roadway.

Table 3.9-1 (continued)
Kilometer Post Site Observations

Kilometer post* (Mile post)	Observations
7.3 (4.5)	Evidence of open dumping (5-gallon metal drum with unknown substance and sofa) on east side of road.
7.5 (4.7)	Approximately 20 dumped tires on east side of roadway.
7.7 (4.8)	Evidence of open dumping (wood debris, concrete, spent rifle shells, bottles, etc.) on east side of road.
7.9 (4.9)	Dumped washer, oven, and television on west side of roadway.
8.4 (5.2)	Approximately 30 dumped tires on east side of roadway.
10.2 (6.3)	Dumped truck bed on east side of roadway.
10.4 (6.5)	Roadway to Tripp Flats on west/right.
10.6 (6.6)	Approach road FDR 6S16 veers east/left.
11.6 (7.2)	San Bernardino National Forest boundary.
11.6 (7.2)	Private driveway on west/right with evidence of open dumping.
11.9 (7.4)	Approach road FDR 6S18 veers west/right.
11.9 (7.4)	Dumped refrigerator on east side of roadway.
12.6 (7.8)	Flying W Ranch driveway east side of roadway.
13.2 (8.2)	End of native soil surface; beginning of asphalt pavement surface.

*Kilometer posts were determined by odometer readings starting at the north terminus of the project to the south terminus and may not correspond with actual distance.

Polychlorinated Biphenyl-Containing Equipment

Aerial four-strand power lines with capacitors are located adjacent to the roadway between 0.0 to 0.5 km (0.0 to 0.3 mi) posts. The poles vary from 9 to 152 m (30 to 500 ft) or more from the side of Bautista Canyon Road. Anza Electric Cooperative (AEC) owns the utility poles and infrastructure. AEC was contacted 5 April 2002 to obtain records indicating the presence of polychlorinated biphenyls (PCBs) associated with the capacitors. According to the AEC, the equipment along Bautista Canyon Road has not been tested for PCBs; however, given the age of the capacitors, it is not expected to contain PCBs (AMEC 2002c).

Other Hazardous Substances

A fiber-optic line owned by Verizon Communication Services is located parallel to Bautista Canyon Road. Verizon Communications Service was contacted 5 April 2002 to obtain information regarding potential hazardous materials used in relation to the fiber-optic lines. Materials used in the construction and operations of the fiber-optic line do not contain hazardous substances (AMEC 2002c).

Regulatory Literature Search

The ISA included a review of existing federal, state, and local lists and files of reported hazardous waste sites and hazardous substance/petroleum product sources and releases for properties within the project study area. Based upon the search, neither Bautista Canyon Road nor the surrounding properties located within the ASTM-designated search radius, which varies from 1/8 of a mi to 1 mi depending on the agency list, were located in the regulatory database listings with one exception. As noted above, The Laborers School (CDC Bautista Conservation Camp) located 0.01 mi (0.2 km) southwest of the site at 36401 Tripp Flats Road in Anza is listed in the State Regional Water Quality Control Board, Region 9 AST database. As noted, the site is not located in the study area. The following agencies were contacted to identify records indicating hazardous materials spills.

California Department of Toxic Substances Control (DTSC)

No files or records for the study area were found.

Santa Ana Regional Water Quality Control Board (Region 8) (SARWQCB)

No files or records for the study area were found.

County of Riverside Department of Environmental Health (DEH)

No files or records for the study area were found.

County of Riverside Agricultural Commissioner/Weights and Measures Department (AWM)

No files or records for the study area were found.

United States Department of Agriculture Forest Service (USDAFS)

The USDAFS was contacted on 20 March 2002 to obtain information regarding the use of fertilizers, herbicides, and pesticides and the location and files on methamphetamine laboratory dumps on or near the project site. No history of fertilizer, herbicide, or pesticide use along the corridor was found. Four dump sites were located off Bautista Canyon Road along and north of the study area. One dump site was located at a stream crossing. Another dump site was located 1.3 km (0.8 mi) above CDC Bautista Conservation Camp (see Table 3.9-1). Two other dumps were located by Hixon Trail. The dump sites contained empty containers of primarily denatured alcohol.

Riverside County Sheriff Department, Hemet Station (RCSD)

The RCSD in Hemet was contacted on 26 March 2002 to obtain information regarding the methamphetamine laboratory dumps. Most of the dump sites contained empty 19-liter

(5-gallon) gray crushed freon containers, empty 3.8-liter (1-gallon) camp fuel containers (denatured alcohol), and empty containers of 1,000-count pseudo-ephedrine pill bottles. The dump sites often contained solvents such as acid and the binders from the pill capsules. The presence of containers of denatured alcohol was confirmed during the site reconnaissance.

3.9.2 Regulatory Setting

Local

The Riverside County Hazardous Waste Management Plan (HWMP) serves as the County's primary planning document for the management of hazardous materials.

3.9.3 Thresholds of Significance

The proposed action would result in a significant impact to the environment if it would:

- create an adverse hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- create an adverse hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- emit hazardous emissions or handle hazardous or acutely hazardous materials or waste within 0.25 mi of an existing or proposed school; or
- be located on a site that is included on a list of hazardous materials sites compiled pursuant to USC § 65962.5 and, as a result, create an adverse hazard to the public or the environment.

3.9.4 Environmental Consequences

3.9.4.1 Alternative A

The proposed action is a roadway reconstruction project and would not create an adverse hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.

Further, the proposed project would not create an adverse hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Field surveys noted evidence of several methamphetamine laboratory dump sites located along and north of the site. Empty containers for freon, denatured alcohol, pseudo-ephedrine pills and, occasionally, acids were found. Although the waste tire dump sites pose a potential fire hazard and vector (e.g., mosquitoes, rodents, etc.) control issue, the quantity reported does not exceed the regulatory enforcement limit of 500 tires; therefore, they do not pose a significant environmental hazard impact. The empty containers for freon, denatured alcohol, pseudo-ephedrine pills and acids would not pose a significant health or environmental hazard impact because they were found empty. As a condition of project approval, existing dump sites would be cleared, handled, and disposed of prior to site excavation and grading activities in compliance with the Occupational Safety and Health Administration (OSHA) and federal, state, and local regulations.

Visual evidence of potential hazardous substance and petroleum product release, and disposition observed at several of the open dumping areas along the project site, including staining and burning from unknown substances, could pose a potential hazard to construction personnel during excavation and grading. Additional sampling and testing in the areas where staining and burning were observed would be required to further characterize the nature of the staining, and in the areas where petroleum product release was observed, to reduce potential adverse effects from hydrocarbons to below a level of significance (AMEC 2002c).

The proposed project is a roadway reconstruction project and would not emit hazardous emissions or handle hazardous or acutely hazardous materials or waste within 0.4 km (0.25 mi) of an existing or proposed school.

The proposed project is not located on a site that is included on a list of hazardous materials sites compiled pursuant to USC § 65962.5 and, as a result, would not create an adverse hazard to the public or the environment.

3.9.4.2 Alternative B

Hazardous materials effects would be the same as those described for Alternative A because a deviation in the roadway alignment would not change the effects related to exposure to hazardous materials.

3.9.4.3 Alternative C

Hazardous materials effects would be the same as those described for Alternative A because a deviation in the roadway alignment would not change the effects related to exposure to hazardous materials.

3.9.4.4 Alternative D

Under the No Action alternative, improvements to Bautista Canyon Road would not occur. Existing conditions would remain the same. Therefore, effects from hazardous materials would not increase as a result of implementation of Alternative D.

3.9.5 Mitigation

Although there was no documentation of unauthorized releases or of existing hazardous substances or petroleum product contamination at the project site, the evidence observed (e.g., of petroleum products release, and staining and burning from unknown substances) indicates the potential for contamination from hydrocarbons. Additional soil sampling and analysis in areas where staining and burning and petroleum product release were observed would be required prior to the commencement of excavation and grading operations in order to reduce potential contamination from hydrocarbons and a potential hazard to construction personnel during excavation and grading activities.

3.10 Visual Resources

3.10.1 Existing Conditions

Project Viewshed

The project viewshed is defined as the surrounding geographic area from which improvements are likely to be seen based upon topographic and land use patterns. The steep slopes abutting the existing roadway largely define the outer viewshed limit for the project area. Because of the steepness of the surrounding hillsides, undulating topography, and the fact that Bautista Canyon Road is completely surrounded by open space, the roadway is not visible from residential or other land use areas within the project study area (see Figure 3.10-1).

The northern limit of the viewshed is located where the existing Bautista Canyon Road asphalt pavement ends and the unpaved segment begins. With the exception of the CDC Bautista Conservation Camp, natural open space surrounds the northerly viewshed area. The southern limit of the viewshed is where the roadway changes from dirt road to asphalt pavement again at the southern end of the project area. Rural residential land use surrounds the southern viewshed area. The eastern and western limits of the viewshed extend out approximately 0.8 km (0.5 mi) from Bautista Canyon Road. Most views to the east and west are blocked by lower ridgelines on either side of the roadway and Bautista Canyon. Natural open space surrounds the eastern and western viewshed area. The USDAFS Tripp Flats Forest Service Station is approximately 1 mi west of Bautista Canyon Road. A dirt access road intersects with Bautista Canyon Road. The station is not visible from the roadway. More distant views of the San Jacinto and San Bernardino mountains can be seen from very limited viewpoints along Bautista Canyon Road looking to the north and east.

Native vegetation grows in most of the nonvertical cuts and fills, reducing the visual impact of the existing road corridor. The existing vegetation along the road helps minimize the current visual effect so that the road does not dominate the landscape visual quality. Additionally, the native vegetation helps soften the impact of the existing road by screening and softening the color contrast between the road and surrounding landscape. In areas where vertical cuts have been made, vegetation is sparse and the underlying soil or rock is exposed. Earth and rock colors range from light tans to darker browns and rust colors.

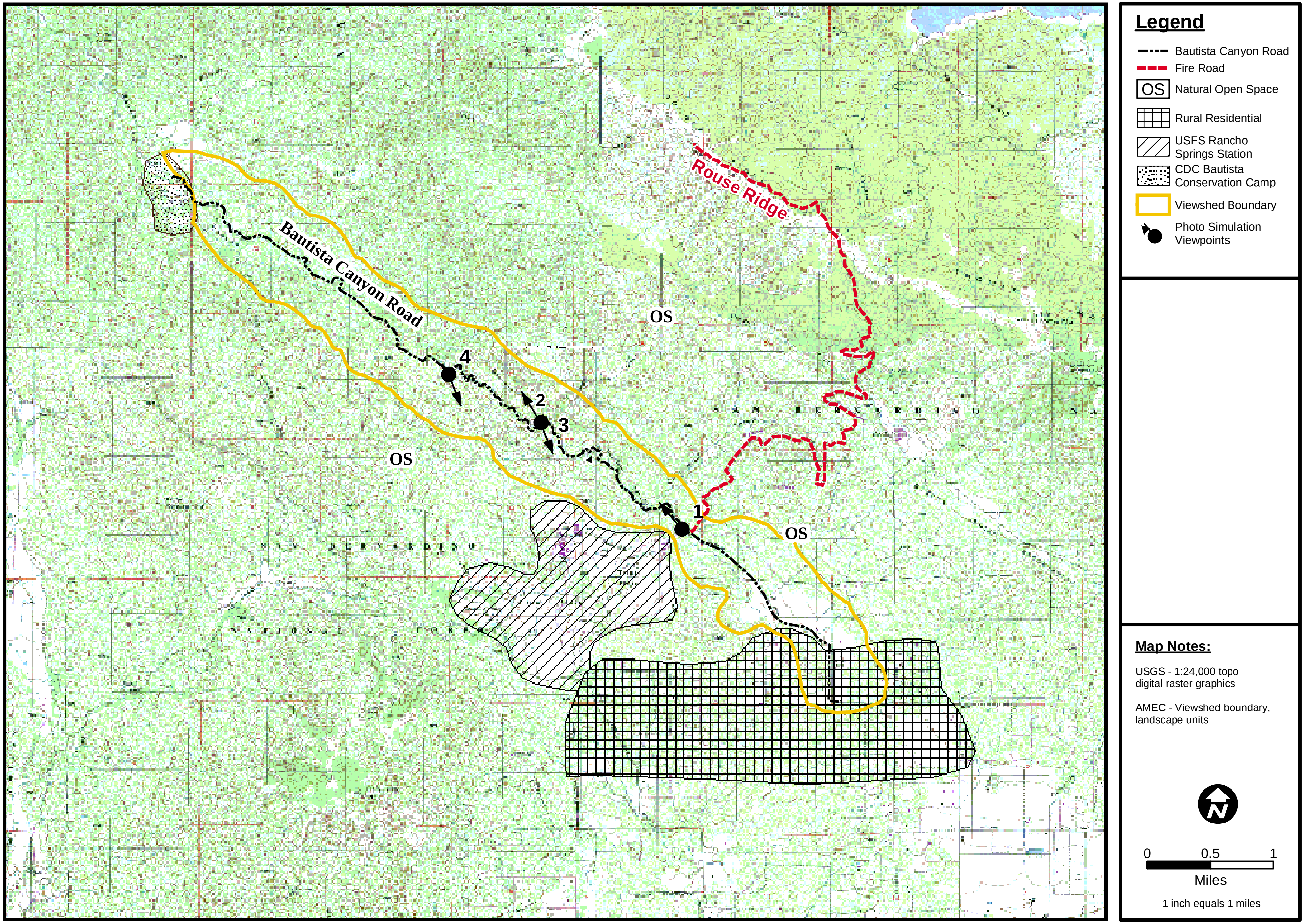

FIGURE 3.10-1

Project Viewshed and Landscape Units

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Landscape Units and Viewers

Elevations along Bautista Canyon Road (unpaved segment) range from 823 m to 1,219 m (2,700 ft to 4,000 ft) above mean sea level (MSL). The lowest elevations are found at the northern end of the project study area and from this point Bautista Canyon Road steadily increases in elevation toward the southern end of the project area. The elevations along Rouse Ridge are approximately 1,524 m (5,000 ft) and higher. The landscape in the project area extends from the canyon floor to small mountains and peaks on either side on the canyon. Within the immediate project area, steep, shrub-covered hills are typical. Bautista Canyon and other tributary canyons paralleling Bautista Canyon Road provide the most evident topographic relief in the project area. Water flow within Bautista Creek and other creeks traversing the roadway is intermittent.

Vegetation in the project area is mostly natural chaparral and scrub. Chaparral, coastal sage-chaparral scrub, and sagebrush scrub vegetation are primarily associated with the steep hillsides. Some riparian forest, southern willow scrub, and oak woodland vegetation are also found along the canyons and creek beds. Disturbed habitat is found along the road and in former construction staging areas in various locations along the roadway and is dominated by nonnative annual species and perennial broad-leafed species.

A landscape unit is defined as an identifiable geographic area and generally distinguishable by variations in the landscape's visual character such as landforms, water features, vegetation, or man-made developments (FHWA 1986). Four landscape units with distinct characteristics have been identified and are shown in Figure 3.10-1. Each is described below, along with a description of the relationship between the landscape unit and associated visual features. Natural open space is the dominant landscape unit within the project area.

1. **Natural Open Space.** The wide valley known as Bautista Canyon is a prominent landscape unit within the study area. Parallel to Bautista Canyon Road, it is similar to other canyons in the region and in the SBNF and provides visual relief from urban development and freeway corridors within Riverside County. Bautista Canyon Road follows the canyon floor between the communities of Valle Vista and Anza. Overhead single-pole power lines parallel Bautista Canyon Road from the northern terminus to the south end of the existing dirt road segment. Bautista Canyon Road is somewhat visible from Rouse Ridge (FS road 5S15), a low-use fire road.

   The canyon is an important open space element of the SBNF BMU and County of Riverside REMAP. Bautista Canyon Road is designated a NHT and believed to be in proximity to the actual route of the Juan Bautista de Anza expedition. Recreational trail users use the designated and volunteer trails in this area. Users include Native American groups who come to the canyon to gather *Juncus* and other species used for basketry, and OHV enthusiasts. Recreational users and motorists are considered sensitive viewers because of their expectation of a scenic experience, especially sight seers.

2. **Rural Residential.** A rural residential community is located at the southern end of Bautista Canyon Road, and just north of SH 371 in the community of Anza. Within this

landscape unit, visibility is typically limited by intervening structures, topography, and vegetation. The closest residence is about 40 m (131 ft) to the east of Bautista Canyon Road. No homes actually front Bautista Canyon Road. Residential viewers are considered sensitive to roadway projects.

3. **CDC Bautista Conservation Camp.** The CDC Bautista Conservation Camp is located immediately adjacent to the west side of the roadway at the northern end of the study area. The Conservation Camp is located at a slightly lower elevation than Bautista Canyon Road and the nearest buildings are located approximately 160 m (525 ft) from the roadway. Visibility of the roadway is limited by intervening structures, topography, and vegetation. Camp residents are not considered sensitive to roadway improvement projects.

4. **USDAFS Tripp Flats Forest Service Station.** The USDAFS Tripp Flats Forest Service Station is located approximately 0.8 km (0.5 mi) west of the roadway and approximately 3.7 km (2.3 mi) north of the southern terminus. The station cannot be seen from the roadway.

3.10.2 Regulatory Setting

Federal

The visual resources analysis for the Bautista Canyon Road Project was conducted in accordance with the objectives and methods described in the *Visual Impact Assessment for Highway Projects,* FHWA, March 1981, and based on input from the SBNF and USDA Visual Resource Management System. The following steps were performed for this assessment:

1. Define the visual environment and document existing landscape characteristics within the project viewshed.
2. Identify major viewer groups and determine anticipated viewer response.
3. Identify views for the visual assessment based on representative viewer types and typical viewing conditions.
4. Document the type and degree of visual changes in the study area expected based on a review of project alternative engineering plans.

The visual study geographic limits consist of the viewshed boundary for the project (see Figure 3.10-1). The viewshed boundary was determined in the field and through analysis of USGS topographic maps. The character of the existing visual environment within this study area was then documented through field reconnaissance and photographic records.

Viewer groups within the viewshed limit were determined through a review of the REMAP, USGS topographic maps, and field reconnaissance. As described, a total of four landscape units were identified through this process.

Viewer responses to visual changes from the proposed action were based on input from the SBNF. Viewer types and activities were based on existing land use information. Viewer types or groups are based on FHWA guidelines where physical factors are acknowledged to modify perception. Therefore, the physical location of a group, the number of people in a group, and the duration of their view are considered in evaluating viewer response. Activities can both encourage a viewer to observe the surroundings more closely (scenic driving) or discourage observing (commuting in heavy traffic). In conformance with FHWA guidelines, viewer sensitivity is distinguished among project viewers in rural residential and recreational areas, with both considered to have a relatively high sensitivity.

Visual effects were based on visual management standards adopted for the SBNF. The visual quality objectives (VQOs) for the SBNF are the adopted visual management standards for the forest. Visual resource management input was provided by the SBNF on 19 December 2001 for the project build alternatives (SBNF 2001). The purpose of the input was to discuss the potential visual effects of the proposed action and to provide alternatives to reduce the visual impact caused by the proposed road design. The following management prescriptions for the Bautista Canyon view corridor are based on SBNF input:

- The VQO has been designated as **"Partial Retention"** with much of the landscape visible from a foreground (0 to 0.5 mi) and middle-ground (0.5 to 4 mi) range. The current road alignment is located in an area where the VQO is "Partial Retention." The "Partial Retention" refers to landscapes where the valued landscape character "appears slightly altered." Noticeable deviations must remain "visually subordinate" to the landscape character being viewed. The term "appears slightly altered" refers to a landscape character that has been modified, but the activity (road) does not dominate the overall character of the landscape.
- The proximity of the viewer to the surrounding scenery has led to Bautista Canyon being classified as **"Sensitivity Level 1."** This classification refers to the highest viewer sensitivity. Sensitivity levels are a relative measure of a landscape's aesthetic importance from the standpoint of location and visual exposure to the public. In determining types of use on the national forest roads and trails, recreation use is the highest. Driving for pleasure is one of the most prevalent recreation experiences in the SBNF.
- The Landscape Character in this part of the SBNF is classified as **"Variety Class C"** type landscape. "Class C" landscapes are landscapes where the landforms, vegetation patterns, and cultural land uses have lower scenic value. Distinctive landforms, water features, and rock-form are often absent from a "Class C" characteristic landscape. For most of the year, the stream in the canyon is a dry stream adding only a small amount of value to the overall scenic attractiveness.

The selection of representative views was made based upon the major viewer group(s) that would be affected by the project and the types of planned roadway improvements that would represent areas of large cuts and fills. Four views were selected for analysis. The evaluation of visual changes within the study area was made based upon an assessment of the existing visual character of the landscape seen from each view, and the degree to which the project would change or contrast with that view. This discussion documents the existing visual resources and the types of viewers within the project area viewshed. The degree of visual change expected to result from the preferred alternative and an analysis of impact is provided.

SBNF Land and Resource Management Plan (LRMP) Visual Goal – Visual Resources

- *Meet adopted VQOs in all areas.*

3.10.3 Thresholds of Significance

The proposed action would result in a significant impact to the environment if it would:

- have a substantial adverse effect on a scenic vista[17];
- substantially degrade the existing visual character or quality of the site and its surroundings;
- substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway; or
- create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.
- fail to meet SBNF VQO visual management standards.

3.10.4 Environmental Consequences

Visual effects may be associated with changes in either the built or natural environment and can be short-term or long-term in duration. The presence of heavy machinery during construction of the project is considered a short-term visual impact. The large trucks, bulldozers, etc., which would be visible both within the construction zone and on neighborhood roads used to access the site, would be absent once construction is complete. Long-term visual changes are associated with alteration of the natural topography, cutting of slopes and filling of low points to prepare a suitable roadbed, and construction of the bridge over Bautista Creek. The focus of this analysis is on long-term permanent physical changes.

The magnitude of visual impact depends upon the degree of alteration, the scenic quality of the area disturbed, and the sensitivity of viewers. The degree of alteration refers to the maximum height and depth of cut and fill areas, while acknowledging any unique topographic formation or natural landmark.

Special zoning and planning overlay zones often indicate scenic quality. Sensitive viewers, typically residents or recreation users, are those who utilize the outdoor environment or value a scenic viewpoint to enhance their activity. Changes in an existing landscape where there are no identified scenic values or sensitive viewers are not considered significant. It is also possible to acknowledge a visual change, such as introduction of a new roadway in an undeveloped area, that would not be significant either because viewers are not sensitive or because the surrounding scenic quality is not high.

Four representative views along the middle segment of the proposed roadway reconstruction project were selected to show the existing roadway and conditions compared to the proposed

[17] Webster's Dictionary defines "scenic" as picturesque with attractive or impressive natural scenery. "Vista" is defined as a scenic or panoramic view.

roadway and conditions post-construction. The photo simulations of the post-construction conditions show the paved corridor and represent what the cut and fill slopes would look like after they are revegetated or the rock stained. The four views were chosen at different locations along the proposed alignments to depict what would be seen from the motorist's perspective (see Figure 3.10-1). Photo simulations (Figures 3.10-2 through 3.10-5) show existing views, the proposed roadway, and adjacent cut and fill slopes.

View 1 (Figure 3.10-2) is looking northwest and was taken on Bautista Canyon Road from the southern end of the study area segment. This view gives a close foreground perspective from the motorist's viewpoint. At this location, the proposed alignment is being shifted westward away from Bautista Creek.

View 2 (Figure 3.10-3) is also looking toward the northwest from about midpoint along Bautista Canyon Road, but shows a middleground and background view of Bautista Canyon. At this location the proposed alignment nearly follows the existing roadway alignment as it meanders around the hillsides. Some grading occurs due to roadway widening.

View 3 (Figure 3.10-4) was taken at the same location as View 2, but the viewer is looking toward the southeast. As shown in Figure 3.10-4, the proposed roadway alignment is shifted slightly downhill from the existing roadway to accommodate proposed design speeds and greater curve radius.

View 4 (Figure 3.10-5) is also looking toward the southeast, but is located farther north from Views 2 and 3 along Bautista Canyon Road showing middleground and background. Here again the proposed alignment is deviating from the existing alignment to accommodate proposed design speed and greater curve radius.

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Photo Simulation - View 1

FIGURE

3.10-2

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FIGURE

Photo Simulation - View 2

3.10-3

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FIGURE

Photo Simulation - View 3

3.10-4

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FIGURE

Photo Simulation - View 4

3.10-5

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3.10.4.1 Alternative A

Implementation of Alternative A would have an adverse effect on a scenic vista and would substantially degrade the existing visual character and quality of the site and its surroundings. The proposed road would be a dominant human-made feature and would change the scale of the landscape experience, primarily when viewed from a driver's perspective, because the proposed action would realign the roadway from its canyon floor location. The proposed width of the new road would reduce visibility into the canyon in some places for uphill travelers in a typical car due to the proximity of the lane away from the downhill side of the roadway. Motorists on the creek side of the roadway would have better views of Bautista Canyon. The opportunity for viewing into the canyon would also diminish for motorcycles traveling uphill due to the proposed expansion of the road width. The scale of the proposed road would also exceed the human scale[18] of the existing road, because the vegetation that borders the existing road would be removed or would be farther away as a result of widening the road and shoulders. Implementation of Alternative A would result in a total of 22.7 ha (56.1 ac) of disturbance within [6.6 ha (16.3 ac)] and outside of [16.1 ha (39.8 ac)] the existing roadway.

Alternative A would result in a major visual impact as currently designed and would not meet the VQO standards of "Partial Retention" set by the SBNF. The proposed road would dominate the existing landscape in all aspects including form, line, color, and texture and it would change the landscape character of the canyon. The proposed cuts and fills would be dominant features along the road edges and change the natural form, line, color, and texture of the existing landscape, altering the natural scenery of the canyon when viewed from an inferior or a superior position[19] in the canyon. Large cuts that are mostly composed of exposed rock could remain an adverse visual impact for decades (see Figures 3.10-2 through 3.10-5). The visual effect of large fills, however, could be reduced to below a level of significance with appropriate revegetation. Guard railing could also add to the overall adverse effect on the scenic quality due to the introduction of unnatural colors and forms not currently found in the landscape. Installation of guardrails would be installed only when absolutely needed for safety. To minimize visual effect, FHWA has proposed use of weathered steel guardrails, which are rust colored. This is anticipated to reduce the adverse visual effects of these barriers.

Most of the visual impact would be seen from Bautista Canyon Road itself while traversing the canyon in either direction. The greatest effect would occur within the "foreground," which ranges from 0 to 0.8 km (0 to 0.5 mi). The proposed new road alignment would also be visible from Rouse Ridge (road 5S15). Most of the visual impact from this road would briefly occur at one or two locations along the top of the ridge. From the Rouse Ridge fire road, Bautista Canyon Road would be somewhat visible below (see Figure 3.10-1). The roadway would not be visible from other locations because of the adjacent topography.

---

[18] Human Scale - The size or proportion (scale) of a space, a part of a building, an article of furniture, or any other object, relative to the structural or functional dimensions of the human body.

[19] Observer Position is a term employed to describe the observer's elevation relationship between the viewer and the landscape he or she sees. It is used to indicate if the viewer is essentially below, essentially at the same level, or essentially above the visual objective. Three specific terms are used: 1) observed inferior, viewer below object; 2) observer normal, viewer on level of object; 3) observer superior, viewer above object. (*Visual Impact Assessment for Highway Projects, FHWA, no date*).

To reduce visual effects, reseeding disturbed vegetation and colorizing the exposed rock faces on the road cuts would be required as part of project design. Fills would be blended into the natural contours, rather than left as flat faces. Cut edges would be rounded back to the natural slope and revegetation of exposed slopes would follow. As part of the project design, materials such as wood or steel used for signposts or safety railing would also be stained or painted with colors that are not shiny and that complement the surrounding landscape. All guardrails shall be constructed with metal rails of "self weathering steel," or galvanized steel guardrails may be given a dip treatment in galvanprime or similar solutions, which turn the metal a dull or even very dark gray. A clear stain would be used on wood posts, or posts can be treated and left to self-weather.

The proposed roadway has been designed to minimize high cuts and deep fills where possible. The design speed has been reduced to the minimum established guidelines for a rural collector, which will allow the road to follow the canyon contours. Guardrail installation would be limited. Guardrails would be installed only in areas where it is critical to protect the safety of the motorist. The roadway width has been reduced to the minimum established regulations [7.8 m (26 ft)] for a rural collector. In areas where road fills were excessive in size at several sites along the road, the roadway design was realigned vertically or horizontally to reduce fills at several points on the road. An erosion control and revegetation plan for all soil disturbances, including road cuts and road fills, is proposed. Existing landscape vegetation has been collected as a seed source for reseeding. The implementation of these design features would reduce the significant visual effects. Additional measures would be required to ensure that visual impacts associated with steep cuts and fills that cannot be revegetated and with guardrail construction materials are mitigated.

Implementation of the above project design features and required mitigation discussed in Section 3.10.5 would reduce adverse visual impacts relative to the thresholds of significance defined in Section 3.10.3, and would ensure the project complies with VQO objectives defined by the SBNF.

<u>Vista Opportunity</u>

- Bautista Canyon Overlook

  A 0.1 ha (0.3 ac) overlook area would be constructed and located approximately 5.5 km (3.4 mi) from the north end of the project area on the east side of the roadway. The conceptual design includes an asphalt pullout area with parking for five vehicles and a 2 m (6 ft) wide natural pathway to an interpretative overlook (see Figure 2.2-5). The overlook area would meet ADA standards.

The Bautista Canyon Overlook site would offer the best view of the canyon from the low end to the high end, providing an ideal site for interpreting historical information. A minimum impact design would be required as part of the project design. The overlook would provide a positive visual benefit to motorists and other recreational users by providing a convenient off-road opportunity to stop and enjoy canyon views and also an opportunity to learn about the history of Bautista Canyon and the Juan Bautista de Anza expedition and NHT.

Alternative A would not substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. Bautista Canyon Road is not designated a state scenic highway.

Alternative A would not create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area. No roadway lighting is proposed along the reconstructed segment of Bautista Canyon Road.

The long-term, direct, and indirect adverse visual effects of the cut and fill slopes, which would range up to 32 m (104 ft) in height, could be mitigated with the implementation of mitigation measures described in Section 3.10.5.

<u>SBNF Land and Resource Management Plan (LRMP) Visual Goal – Visual Resources</u>

Alternative A as proposed would not be consistent with the SBNF LRMP visual resource goal to "*meet adopted Visual Quality Objectives [VQOs] in all areas*." However, the proposed design features described above and mitigation measures described in Section 3.10.5 would reduce visual quality effects of Alternative A to the extent necessary to meet the "Partial Retention" VQO adopted by the SBNF for the Bautista Canyon view corridor.

No significant short-term, or unavoidable visual effects would result with the implementation of Alternative A.

3.10.4.2 Alternative B

Visual effects would be similar to those described for Alternative A. Alternative B would result in more total disturbance [23.4 ha (57.8 ac)] than Alternative A, both within [5.5 ha (13.6 ac)] and outside of [17.9 ha (44.2 ac)] the existing roadway. Resulting significant impacts would be mitigated to below a level of significance. The Bautista Canyon Overlook would be located at the same location as described in Alternative A and would result in a beneficial impact.

Like Alternative A, Alternative B as proposed would not be consistent with the SBNF LRMP visual resource goal. However, the proposed design features described above and mitigation measures described in Section 3.10.5 would reduce visual quality effects of Alternative B to the extent necessary to meet the "Partial Retention" VQO adopted for the Bautista Canyon view corridor.

3.10.4.3 Alternative C

Visual effects would be the same as those described for Alternative A. Alternative C would result in similar total disturbance [22.8 ha (56.3 ac)] to Alternative A, both within [6.2 ha (15.3 ac)] and outside of [16.6 ha (41.0 ac)] the existing roadway. Resulting significant impacts would be mitigated to below a level of significance. The Bautista Canyon Overlook would be located at the same location as described in Alternative A and would result in a beneficial impact.

Like Alternative A, Alternative C as proposed would not be consistent with the SBNF LRMP visual resource goal. However, the proposed design features described above and mitigation measures described in Section 3.10.5 would reduce visual quality effects of Alternative C to the extent necessary to meet the "Partial Retention" VQO adopted for the Bautista Canyon view corridor.

3.10.4.4 Alternative D

Under the No Action alternative, improvements to Bautista Canyon Road would not occur. Existing visual conditions would remain the same. Consequently, Alternative D would not result in significant or unmitigable impacts.

3.10.5 Mitigation

The following recommendation measures would be required as part of project design and approval to reduce the significant visual effects of Alternatives A, B, and C:

- Implement an Erosion Control and Revegetation plan for all soil disturbances, including road cuts and road fills. Use the existing landscape vegetation as a seed source for reseeding.
- Colorize the largest and most visible exposed rock surfaces (cut slopes too steep to revegetate) with Permeon or other types of aging chemicals to soften the color contrast of the exposed rock and reduce the visual impact.
- Blend fills into the natural contours, rather than leave them as flat faces.
- Round cut edges back to the natural slope and revegetate exposed slopes.
- Stain or paint materials such as wood or steel used for signposts or safety railing with colors that are not shiny and that complement the surrounding landscape.
- Construct guardrails with metal rails of "self weathering steel," or galvanized steel guardrails.

3.11 Recreation

Recreation can be separated into two major categories: passive and active recreation. Passive recreation includes recreational activities such as camping, horseback riding, picnicking, fishing, and sightseeing. Active recreation includes activities such as hiking, bicycling, motorcycling, skiing, swimming, and other active sports. The project study area for recreation includes the BMU of the SBNF. In addition to the discussion below, recreational impacts are also addressed in the Section 4(f) evaluation found in Section 4.3 of this document.

3.11.1 Existing Conditions

Off-Highway Vehicle (OHV) Trails

Currently, there are two designated Off-Highway Vehicle (OHV) trails and some dispersed recreation within the BMU (USDAFS 1988). No other developed recreation facilities or resources are found within the project study area. The OHV trails are described as follows:

> ***Alessandro Trail*** - This is a 24 km (15 mi) trail that begins at the top of Tripp Flats, just north of the ranger station at an elevation of approximately 1,219 m (4,000 ft). The trail proceeds down toward Bautista Creek and the CDC Bautista Conservation Camp at Bautista Canyon Road.
>
> ***Hixon Trail*** – This OHV trail begins at Bautista Canyon Road approximately 8.9 km (5.5 mi) north of the CDC Bautista Conservation Camp. It crosses Bautista Creek and extends in a southerly direction toward Hixon Flat at an elevation of approximately 1,036 m (3,400 ft).[20] Hixon Trail is not located within the study limits, but intersects Bautista Canyon Road within the logical termini.

Juan Bautista de Anza National Historic Trail (Anza NHT)

In August 1999, Congress passed Public Law 101-365 making the Anza NHT a component of the National Trails System, to be administered by NPS. Of the 1,930 km (1,200 mi) length of the Anza NHT from Nogales, Arizona, to San Francisco, California, 259 km (161 mi) are components that cross federal lands. The only trail component within the study area is a 13.2 km (8.2 mi) segment of Bautista Canyon Road that passes through the SBNF (SRI 2003). This segment of the Anza NHT functions as an auto route (FH 224) and rural collector linking the communities of Anza and Valle Vista/Hemet. Native American tribes also use this segment of the Anza NHT to access plant collecting areas.

3.11.2 Regulatory Setting

<u>SBNF Land and Resource Management Plan (LRMP) Recreation Goals – Recreation</u>

- *Provide a wide range of developed and dispersed recreational opportunities with a shift toward day use activities.*
- *Expand interpretive services program and activities.*

[20] Source: USGS. 2001. Survey Results for the Arroyo Toad in the SBNF Final Report.

3.11.3 Thresholds of Significance

The proposed action would result in a significant impact to the environment if it would:

- increase the use of existing neighborhood, regional parks, national forests, or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or
- include recreational facilities or require the construction or expansion of recreational facilities or require the construction or expansion of recreational facilities that might have a significant physical effect on the environment.

3.11.4 Environmental Consequences

3.11.4.1 Alternative A

The increased traffic on Bautista Canyon Road may lead to increased awareness of the existence of an OHV trail in the area which could increase use of the OHV trail. Similar increased awareness of SBNF as a recreational resource could result. As noted in Section 2.4.1, construction of the proposed project would result in a temporary closure of Bautista Canyon Road. Thus, access to the NHT auto route would be restricted. The County of Riverside and FHWA will define an alternative route in consultation with the NPS and ensure appropriate signage is in place prior to initiating the road closure. The impact would be temporary and occur only during construction. Operation of the proposed project would not adversely affect any existing neighborhood or regional parks or otherwise cause the physical deterioration of recreational facilities.

As noted in Section 2.2, the proposed project would include construction of a 0.1 ha (0.3 ac) overlook area and a 0.1 ha (0.3 ac) OHV trailhead pullout at the Alessandro Trailhead (Figure 2.2-5). Each facility would have five parking spaces. Improved access to OHV and hiking areas within the SBNF may increase the number of users. It is assumed all users would be required to purchase Adventure Permits from the SBNF and comply with any restrictions and/or requirements. Activities would be restricted to daytime use; and thus, would be consistent with the SBNF LRMP recreation goal referenced above. Thus, while use of the area may change as a result of the project, no significant adverse impacts to recreation are anticipated.

3.11.4.2 Alternative B

Recreation effects would be the same as those described for Alternative A.

3.11.4.3 Alternative C

Recreation effects would be the same as those described for Alternative A.

3.11.4.4 Alternative D

Under the No Action alternative, improvements to Bautista Canyon Road would not occur. Existing conditions would remain the same as described above in Section 3.11.1. No impact to recreational resources would occur.

3.11.5 Mitigation

To minimize effects associated with the temporary closure of the NHT auto route, the FHWA recommends signing an alternate route using SH 371 and/or 74. Specific details would be determined during consultation with the NPS.

3.12 Soils/Geology

Geological resources are defined as the geology, soils, and topography of a given area. The geology of an area includes bedrock materials, mineral deposits, and fossil remains. The principal geologic factors influencing the stability of structures are soil stability and seismic properties. Soil refers to unconsolidated earthen materials overlying bedrock or other parent material. Soil structure, chemical composition, and erodibility all determine the ability of the ground to support structures and facilities.

Topography is typically described with respect to the elevation, slope, aspect, and surface features found within a given area. The project study area for geological resources includes Bautista Canyon Road located in the BMU of the SBNF where proposed construction and ground-disturbing activities would occur.

An interim geotechnical investigation report, titled *California Forest Highway 224, Bautista Canyon Road, SBNF CA PFH 224-1(1), Interim Geotechnical Report, February 2003* (FHWA 2003), was prepared by FHWA's Technical Services Branch for the proposed project to characterize surface and subsurface soil and rock conditions. The report can be found in Volume II, Appendix J of this EIS/EIR. Relevant sections are summarized and used as a basis to address geology and soils impacts associated with the proposed project.

3.12.1 Existing Conditions

Geologic Setting

Bautista Canyon Road is a narrow, northwest-trending canyon located on the southwestern flank of the San Jacinto Mountains. San Jacinto Peak, at an elevation of 3,293 m (10,804 ft) above mean sea level (MSL), anchors the northern end of Peninsular Ranges, which extends south through Baja California, and from the Pacific Ocean to the Colorado Desert. Bautista Canyon is flanked on the east and west by smaller mountains and peaks – Rouse Ridge at 1,500 m (4,921 ft) and Thomas Mountain at 2,002 m (6,569 ft) to the northeast and Cahuilla Mountain at 1,719 m (5,640 ft) to the southwest. The core of these mountains is granitic rock that was forced upward beneath ancient sedimentary formations of sandstone, shale, and limestone. As part of the natural cycle of mountain evolution, erosion has removed the overlying rock in many areas, exposing the granitic core. The Hot Springs, Buck Ridge, and

San Jacinto Faults traverse the REMAP area generally from northwest to southeast (see Figure 3.12-1). The dominant structure in the vicinity of the proposed project is the northwest-trending San Jacinto Fault Zone that parallels the proposed project alignments to the east.

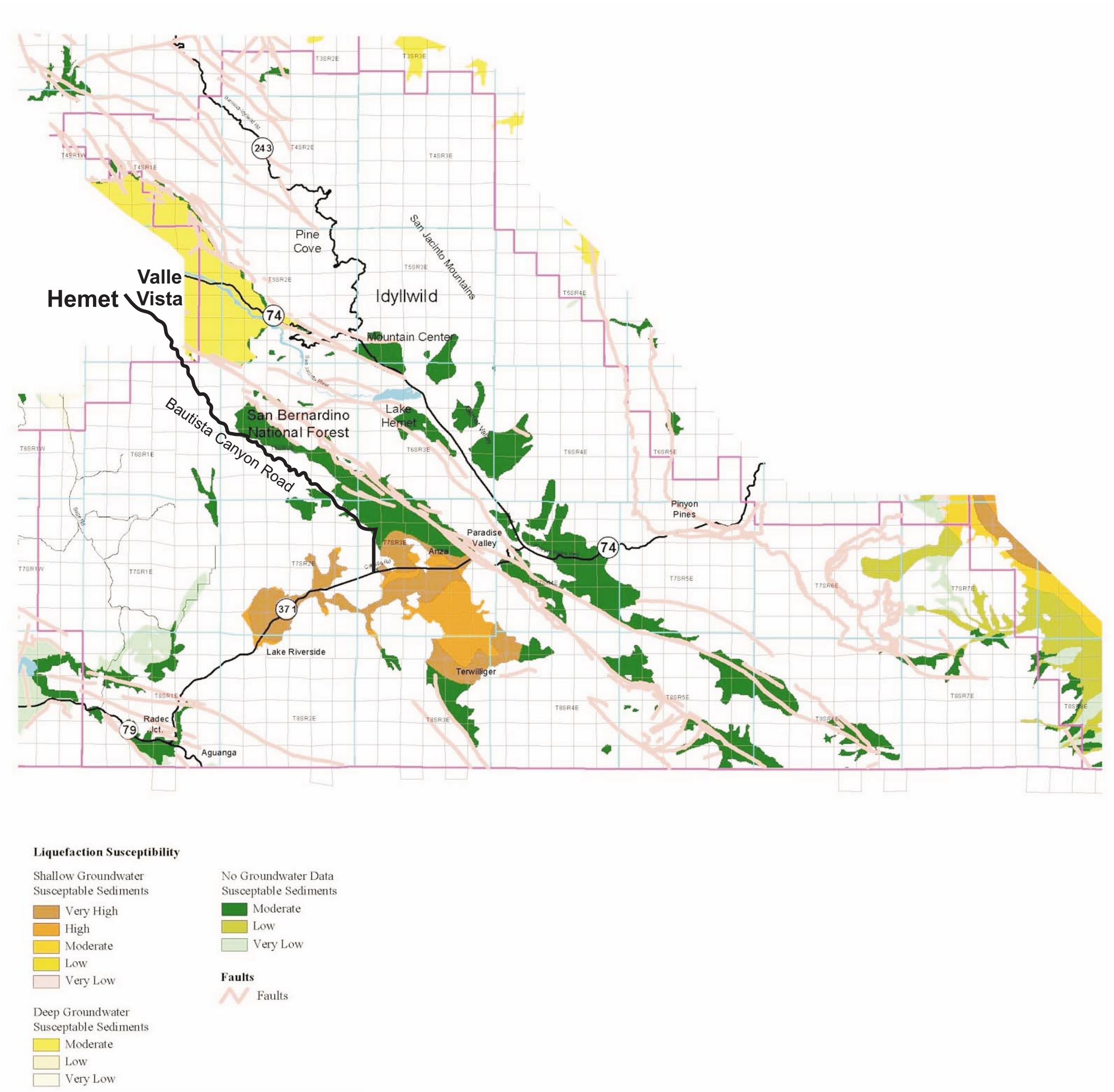
Soils and Mineral Resources

It is estimated that 90 percent of the soils in the SBNF are of granitic origin. They are generally coarsely textured and highly permeable (see Figure 3.12-2). Because of the sharp relief, soils on steep slopes are generally shallow and highly erodible as described in Table 3.12-1.

Soils found within the project study area are rated from moderate to very low in soil productivity. Therefore, no prime agriculture lands exist within the project study area. There is one mine, located approximately 3.2 km (2 mi) northwest of the landing strip near the Tripp Flats Forest Service Station and 2.4 km (1.5 mi) west of Bautista Canyon Road. No surface mines are located within the project study area.

Topography

Bautista Canyon descends from an elevation of 1,262 m (4,140 ft) above MSL at its upper end near Anza Valley to 610 m (2,000 ft) at its mouth near Valle Vista, 24 km (15 mi) to the northwest. The project area is located in the upper portion of the canyon, from 855 to 1,260 m (2,800 to 4,140 ft) above MSL. Bautista Canyon is separated from the main mass of the San Jacinto Mountains by Blackburn Ridge, Rouse Ridge, and Thomas Mountain to the northeast, whereas the Santa Rosa Hills, Red Mountain, Little Cahuilla Mountain, and Cahuilla Mountain define its southwestern rim. The topography along Bautista Canyon Road varies from almost flat relief (5 to 7 percent slopes) in the northern and southern segments to slopes over 30 percent along the mid segment. Natural slopes within the canyon typically occur at approximately 1:1.2 to 1:2.5 (V:H). Cut slopes along the existing Bautista Canyon Road have been constructed at slopes of approximately 1:1.33 to 1:3 (V:H). The majority of existing cut slopes are between 1.8 to 3.7 m (6 to 12 ft) in height. However, several cut slopes extend to approximately 6.1 to 9.1 m (20 to 30 ft) in height (FHWA 2001). Many areas along existing cut slopes exhibit signs of localized erosional and sloughing failures.



SOURCE: County of Riverside

Seismic Hazards

FIGURE

3.12-1

GRAPHIX/Environmental/Bautista Canyon Road/Seismic Hazards_color.FH8

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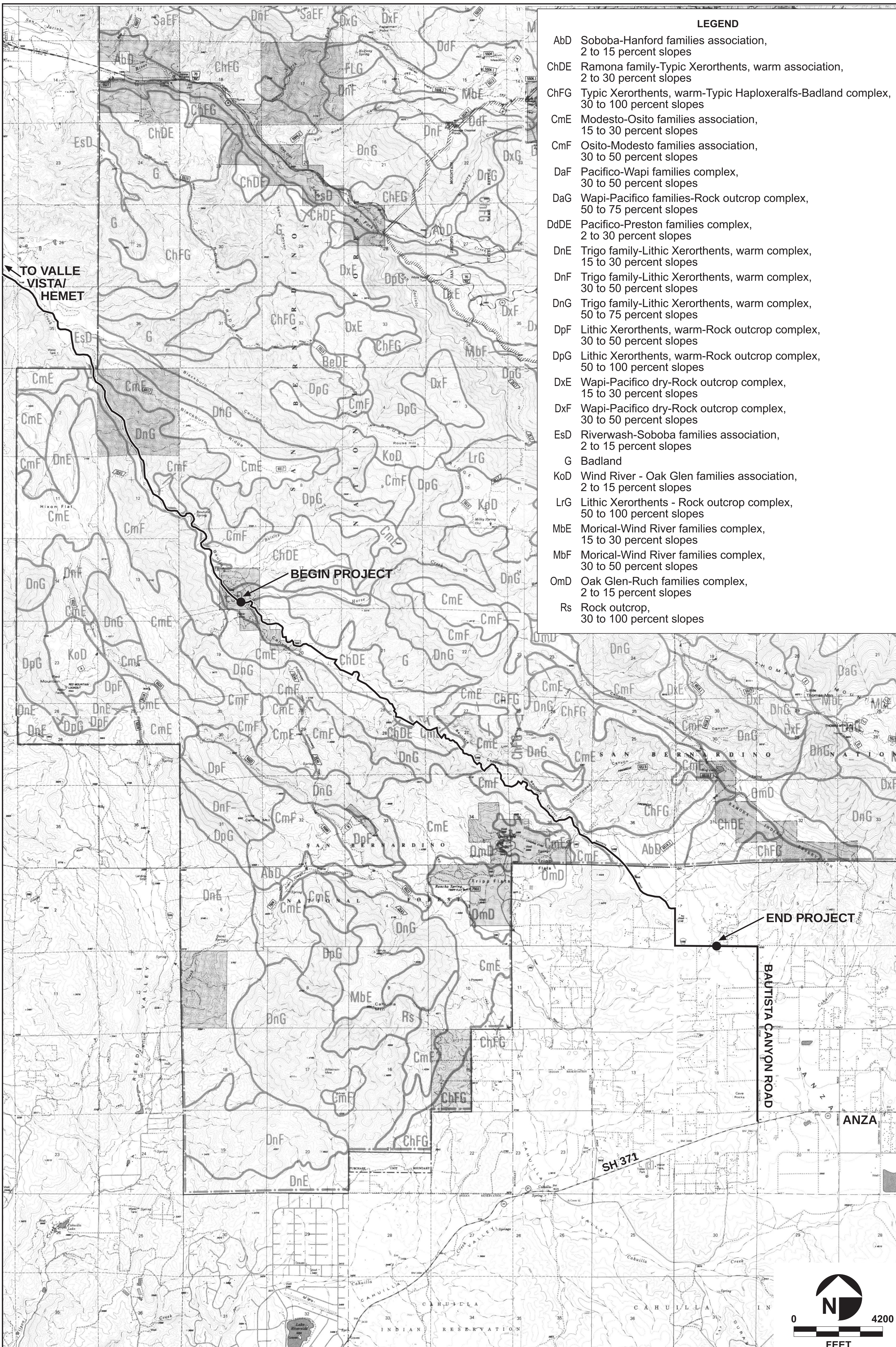

FIGURE 3.12-2

Soils Map

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Table 3.12-1
Description of On-Site Soil Properties

Soil Series	Physical Characteristics	Maximum Erosion Hazard
Modesto	Moderately deep to deep, well-drained soils derived from granitic and metamorphic rock.	Moderate
Osito	Shallow, well-drained soils derived from granitic rock, metamorphic rock, or sandstone.	Very High to High
Ramona	Well-drained soils formed in recent alluvium weathered from granitic rocks.	Moderate to High
River Wash	Unstabilized sandy, gravelly, cobbly, and stony material associated with intermittent drainages.	High
Soboba	Very deep, excessively drained soils formed from recent alluvium weathered from granitic and metamorphic rocks.	Moderate
Trigo	Shallow, somewhat excessively drained soils formed from material weathered from granitic and metamorphic rocks or sandstone.	Very High

Regional and Local Seismic Setting

As noted, Bautista Canyon Road resides within a high seismic region, adjacent to the San Jacinto and Elsinore Fault Zones. The San Jacinto Fault Zone, which cuts through Bautista Canyon, diverges from the San Andreas Fault on the north side of the San Gabriel Mountains and extends southeastward into the Imperial Valley. It may be the most seismically active fault zone in California. Since 1890, the San Jacinto Fault Zone has produced more moderate-to-large earthquakes than any other fault zone in southern California. Two large earthquakes, one in 1899 and the other in 1918, apparently were centered in the southern San Jacinto Valley (SRI 2003).

Active faults in the region with the greatest potential to impact the proposed project lie within the San Jacinto Fault Zone just east of Bautista Canyon and include the Casa Loma-Clark Fault (paralleling the Bautista Canyon lineament), Buck Ridge Fault, and Hot Springs Fault. The Buck Ridge and Casa Loma fault system is the least active in the San Jacinto Fault Zone (FHWA 2003).

At the mouth of Bautista Canyon, the San Jacinto Fault lies beneath Bautista Creek and its fan. Farther upstream, the fault and the stream diverge, with the fault following Blackburn Canyon and then continuing along the slope of Rouse Ridge about 3 km northeast of Bautista Creek, roughly paralleling the stream. Tributary drainages of Bautista Creek on the northeast side of the canyon that cross the fault have distinct “dog-leg” bends caused by right-lateral fault movement. As the fault continues up the canyon, it passes through the Ramona Indian Reservation, 2 km (1.2 mi) northeast of the upper end of the project area. A body of water at the northwest end of the reservation, known as Hog Lake, is a sag pond on the fault. Springs and wetlands at the southeast end of the reservation also are fault-related (SRI 2003).

Liquefaction

Liquefaction occurs in saturated soils, that is, soils in which the space between individual particles is completely filled with water. This water exerts a pressure on the soil particles that influences how tightly the particles themselves are pressed together. During seismic events, water pressure can increase to the point where the soil particles can easily move with respect to each other. When liquefaction occurs, the strength of the soil decreases; thus, reducing the ability of the soil deposit to support foundations for buildings and bridges.

Surface reconnaissance indicates the presence of moderate-to-loose compacted sands (with unknown quantities of silt) potentially extending to a depth of 6 m (19.7 ft) at the proposed center pier location of the proposed bridge site. These sands may occasionally be fully saturated, or may support a fairly shallow water table for extended periods, possibly with a liquefaction range of 0 to 6 m (0 to 19.7 ft) from the surface, although a water table was not identified in the seismic refraction data following a large precipitation event. No other potential liquefaction sites appear to be located within the proposed project area (FHWA 2003).

Groundwater

Groundwater was not encountered within any of the deep borings on the elevated central section of the project (FHWA 2003).

3.12.2 Regulatory Setting

Federal

SBNF Land and Resource Management Plan (LRMP) – Soils Goal

- *Maintain long-term soil productivity and prevent permanent degradation of soils.*

Local

County of Riverside General Plan/REMAP Seismic Policies

REMAP 15.1 *Protect life and property from seismic related incidents through adherence to the Seismic Hazards section of the General Plan Safety Element.*

3.12.3 Thresholds of Significance

The project would result in a significant impact to the environment if it would:

- expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving (1) rupture of a known earthquake fault, (2) strong seismic ground shaking, (3) seismically related ground failure, including liquefaction, or (4) landslides;
- result in substantial soil erosion or the loss of topsoil;
- be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse; or
- be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.

3.12.4 Environmental Consequences

3.12.4.1 Alternative A

No unique geologic features or hazards are known to be present in the study area. However, to minimize risks, design and construction of the proposed Bautista Creek Bridge would comply with local, state, and national bridge design standards. These standards would include seismic safety standards to reduce effects from major seismic events. Additionally, further geotechnical review would be performed prior to final design to determine construction limits and foundation designs. Therefore, with the implementation of these measures during project design, no short-term, long-term, direct, indirect, or unavoidable geologic or seismic effects would occur as a result of the implementation of Alternative A.

Implementation of Alternative A would not result in substantial soil erosion or the loss of topsoil. Roadway improvements and bridge construction all would require grading and excavation of cut and fill slopes. It is estimated that 225,000 m^3 (294,300 yd^3) of material would be excavated. Fill needs would be met through the on-site balance of cut and fill. All construction fill would be subject to applicable composition standards. Short-term and long-term soil erosion effects resulting from project grading activities would be minimized by implementation of a Riverside County approved SWPPP (see Section 3.7, Hydrology/Water Resources). In areas of cut where solid rock exists, soil stability and erosion effects would not be significant, and steeper slopes could be cut in these locations, thereby resulting in a positive benefit by reducing the proposed roadway's footprint.

The implementation of Alternative A would result in cut and fill slopes ranging from approximately 0 to 25 m (0 to 82 ft) high on soils that have moderate to very high erosion risks. In general, fill slopes would be no steeper than 1:2 (V:H). Construction could result in significant soil erosion effects; however, erosion control measures would be implemented to minimize erosion. All cut and fill slopes would be revegetated per the recommendations of the Conceptual Landscape and Revegetation Plan prepared for the project. Revegetation treatment on cut slopes would depend on the steepness of the slope. Slopes up to 1:1.5 (V:H) would have the topsoil replaced and would be seeded. Slopes greater than 1:1.5 (V:H) may not be seeded.

Topsoil and crushed native vegetation (duff) would be salvaged and stored for reapplication within areas containing native vegetation. Fill slopes up to 1:1.5 (V:H) would be smoothed and topsoil reapplied, as feasible, and would be seeded with a native seed mix. With the implementation of the project Revegetation Plan and the slope and erosion control measures described above, topsoil loss would be minimized; thus, soil erosion effects would be reduced to below a level of significance.

As noted, foundations for bridge construction would be designed based on the recommendations of the Interim Geotechnical Investigation Report and additional testing performed prior to final bridge design. Implementation of the measures described above and outlined in the Interim Geotechnical Investigation Report would reduce geologic effects associated with liquefaction to below a level of significance.

Surface mapping of soil and rock conditions along the northern and central segments of the proposed project indicate dense, silty sands with boulder material would be encountered in the northern portion of the project area, along with possible mixed cut slope conditions (alluvium and outcropping rock). Although drilling indicated highly weathered, jointed granitic rock occurs throughout the central portion of the project, pneumatic rock breakage or blasting may be required in large cuts where less weathered granitic or gneissic rock is encountered. The high cuts in the southern portion of the project may require blasting to achieve sufficient fragmentation of the large blocks for efficient handling. Due to the weathered and jointed nature of the rock mass, special attention would be paid to production blasting prior to final trim blasting to minimize over break. Scaling[21], and possibly spot bolting[22], will be critical elements in arriving at stable rock cuts along Bautista Canyon and would be required during project excavation as a condition of project approval.

Project design and construction techniques would occur consistent with federal and state regulations and standards, with appropriate consideration provided to geologic and soil characteristics in the canyon. Thus, no impact to geologic or soil resources as described above is anticipated to occur from the project or to the forest resulting from a seismic, liquefaction, landslide, or related geologic event.

<u>SBNF Land and Resource Management Plan _(LRMP) – Soils Goal</u>

With the implementation of the proposed slope revegetation plan (Volume II, Appendix F) and use of BMPs during construction, Alternative A would be consistent with the soils goal to "*maintain long-term soil productivity and prevent permanent degradation of soils."*

[21] Scaling – the removal of loose rocks and stones.

[22] Spot bolting – the use of a few roof bolts at spot locations.

<u>County of Riverside General Plan/REMAP</u>

Alternative A would be consistent with the seismic policy to *"Protect life and property from seismic related incidents through adherence to the Seismic Hazards section of the General Plan Safety Element."* The proposed Bautista Creek Bridge would be designed to meet California state seismic standards.

3.12.4.2 Alternative B

Based on the available level of geotechnical analysis, potential effects associated with this alternative are anticipated to be similar to those described above for Alternative A. This is based on the fact that these alternatives would entail construction of relatively similar facilities under generally similar geologic conditions. Erosion control measures would be necessary to prevent accelerated erosion; these measures are described above in Alternative A. Construction of Alternative B would require the excavation of approximately 303,000 m^3 (396,300 yd^3) of excavation. All construction fill would be subject to applicable composition standards.

The implementation of Alternative B would result in cut and fill slopes ranging from approximately 0 to 25 m (0 to 82 ft) high on soils that have moderate to very high erosion risks. Construction could result in significant soil erosion effects. However, erosion control measures would be necessary to prevent accelerated erosion and are described above in Alternative A.

3.12.4.3 Alternative C

Based on the available level of geotechnical analysis, potential effects associated with this alternative are anticipated to be similar to those described above for Alternative A. This is based on the fact that these alternatives would entail construction of relatively similar facilities under generally similar geologic conditions. Erosion control measures would be necessary to prevent accelerated erosion; these measures are described above in Alternative A. Construction of Alternative C would require approximately 235,000 m^3 (307,400 yd^3) of excavation. Excess cut would be met through the on-site balance of cut and fill, with all construction fill subject to applicable composition standards.

The implementation of Alternative C would result in cut and fill slopes ranging from approximately 0 to 25 m (0 to 82 ft) high on soils that have moderate to very high erosion risks. Construction could result in significant soil erosion effects. However, erosion control measures would be necessary to prevent accelerated erosion and are described above in Alternative A.

3.12.4.4 Alternative D

Under the No Action alternative, improvements to Bautista Canyon Road would not occur. Existing conditions would remain the same as those described above in Section 3.12.1. Under existing conditions, the generation of wind-entrained fugitive dust and surface erosion during storm events would continue. Because there are no drainage controls in place, erosion contributes to soil loss and sedimentation in Bautista Creek and other surface water drainages. These effects would continue as a result of Alternative D implementation.

3.12.5 Mitigation

The following mitigation measures would reduce potential geologic effects to below a level of significance:

- Detailed surface geologic structure mapping shall be required prior to project approval at additional locations along the central portion of the project area, and on the limited rock outcrop exposures along the southern canyon section – a section where little is currently known about the rock mass. This mapping shall encompass a detailed rock mass kinematics analysis, identifying potential failure conditions in planned rock cuts.
- Following field mapping and data analyses, final design recommendations shall be developed for large rock cuts, including recommendations for rock mass stabilization, as required prior to project approval.
- Topsoil locations and stripping depths shall be determined with the assistance of USDAFS personnel prior to project excavation.
- Bridge foundation recommendations shall build on the seismic information acquired to date and additional pier borings, recommended in the Interim Geotechnical Investigation Report, focusing on deep foundation alternatives for yet-to-be-determined scour depths, groundwater levels, and soil/rock reactivity within the Bautista Creek drainage. Box culvert bearing capacities shall also be developed.
- All cut slopes shall be observed during grading as directed by a geotechnical engineer to ensure conformity with anticipated subsurface conditions.

3.13 Public Services/Utilities

Public services/utilities are defined as various basic services provided by public and private entities for the purpose of enhancing the quality of life. Such services include schools, law enforcement and fire protection, health services, potable water supply systems, wastewater treatment and disposal, solid waste collection and disposal, and utilities. Public services/utilities related to the study area are described below.

3.13.1 Existing Conditions

<u>Schools/Public Facilities</u>

There are two school districts that serve Hemet and the greater Hemet area including Anza. Hemet Unified School District serves all but a portion in the north-central area of the city, which is served by the San Jacinto Unified School District (<www.ci.hemet.ca.us/facts>). Valle Vista Elementary School is located near the northern logical terminus along Fairview Avenue. No other schools are located in the study area.

In addition to Valle Vista Elementary School, there are two other public facilities located near the northern logical terminus in the community of Valle Vista. These are the Valle Vista Library and the Valle Vista Community Center, which are located adjacent to Fairview Avenue. As noted, the CDC Bautista Conservation Camp is located just west of the northern end of the project area at the Horse Creek and Bautista Creek junction. The Tripp Flats Forest Service Station and a privately-owned landing strip are located on the west side of Bautista Canyon Road toward the southern end of the project area (see Figure 1.3-2). No public facilities are located within the project's southern terminus area.

Law Enforcement Protection

The SBNF has one law enforcement officer for the entire San Jacinto Ranger District. Most law enforcement within the SBNF is provided through forest officers and cooperative law enforcement programs. Riverside County Sheriff's Department provides service to the SBNF. The Hemet station office is located at 42950 Acacia Avenue in Hemet (<www.co.riverside.ca.us/sheriff>).

Fire Protection

The County of Riverside contracts with the State of California for fire protection services [California Department of Forestry and Fire Protection (CDF)]. The nearest fire stations to the project area would be Station #29 located at 56550 SH 371 in Anza and Station #72 located at 25175 Fairview Avenue in Valle Vista. The CDF operates a joint Air Attack/Helitack base at the Hemet/Ryan Airport (<www.rvcfire.org>). The SBNF has one fire engine co-located with the CDF at the Anza station.

Health Services

Medical services are provided by the Hemet Valley Medical Center located at 1117 E. Devonshire in Hemet. The facility is a 240-bed full-service acute care hospital with 24-hour emergency department (<www.ci.hemet.ca.us/facts>).

Water

The Eastern Municipal Water District (EMWD) service area extends from Moreno Valley to Temecula, encompassing Perris, San Jacinto, Hemet, and parts of Murietta in Riverside County. The EMWD boundary ends at the southern end of Fairview Avenue. The EMWD provides water to the agricultural uses in that area, but service does not extend to the project area. Water service could be provided by either annexing to EMWD's system or by wells. EMWD also provides temporary water at a stub-out facility located on Fairview Avenue (Odencrans 2003).

Wastewater

EMWD also provides sewerage transmission lines and treatment facilities for the city of Hemet. Sewage is treated at the EMWD sewage treatment plant located in San Jacinto. Sewer service ends at SH 74 at Fairview Avenue in Hemet. Areas outside of this boundary would be on septic systems. No sewer service is available within the project study area (Odencrans 2003).

Solid Waste

Waste Management, Inc. provides solid waste services to Riverside County. Solid waste is taken to one of eight landfills (Badlands, Blythe, Desert Center, Edom Hill, El Sobrante, Lamb Canyon, Mecca II, or Oasis). There also are seven transfer stations (Anza, Burrtec's Coachella, Idyllwild, Moreno Valley, Perris, Pinyon Flats, or Robert A. Nelson) located throughout Riverside County. The Riverside County Waste Management Department operates and maintains the landfills within Riverside County, with the exception of the El Sobrante Landfill, which is owned by Waste Management, Inc. (<www.rivcowm.org>).

Electricity and Fiber-Optic Cable

As described in Section 3.1, Bautista Canyon Road is located in the SBNF, which is an open space and conservation area. No major public services or utilities are located within the SBNF, with the exception of a buried fiber-optic telephone cable owned by Verizon California, Inc., and an aerial power line owned by Anza Electric Cooperative. These facilities are located parallel to the existing alignment of Bautista Canyon Road. The fiber-optic cable and appurtenant maintenance handholds are located within or adjacent to the roadway within the study area. The aerial, 4-strand power line, owned by Anza Electric Cooperative, generally follows the corridor.

3.13.2 Regulatory Setting

There are no regulations applicable to public services in the project area.

3.13.3 Thresholds of Significance

The proposed action would result in a significant impact to the environment if it would:

- result in substantial adverse physical effects associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause adverse environmental effects, in order to maintain acceptable service ratios, response times, or other performance objectives for:
    - Fire protection
    - Police protection
    - Schools
    - Parks
    - Other public facilities
- require or result in construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause adverse environmental effects;
- require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause adverse environmental effects;
- not have sufficient water supplies available to serve the project from existing entitlements and resources, such that new or expanded entitlements are necessary;

- result in a determination by the wastewater treatment provider which serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- be served by a landfill that does not have sufficient permitted capacity to accommodate the project's solid waste disposal needs; or
- not comply with federal, state, and local statutes and regulations related to solid waste.

3.13.4 Environmental Consequences

3.13.4.1 Alternative A

Because the proposed project is a roadway reconstruction project and a transportation facility, Alternative A would not adversely affect public services.

Schools/Public Facilities

Construction and operation of Alternative A would not adversely affect access to or otherwise impact the Valle Vista Library, Valle Vista Community Center or Valle Vista Elementary School. As noted, traffic volumes along Fairview Avenue may increase during construction. A crossing guard would be used to ensure the safety of school children in the area. No long-term impacts to schools or public facilities are anticipated as a result of project implementation.

Law Enforcement

Bautista Canyon Road is the primary route of vehicular access to this portion of the SBNF for administrative use and emergency response, including law enforcement patrols. During construction, provision would have to be made to allow emergency access into Bautista Canyon through the closed segment of road. These arrangements would be made between Riverside County, FHWA, SBNF, and emergency services. Operation of the project would improve access to Bautista Canyon for law enforcement patrols, and thus, would not have any adverse effects on the provision of law enforcement services.

Fire Protection

Implementation of Alternative A would provide improved USDAFS fire/emergency medical vehicle access to Bautista Canyon. Improving the route would greatly enhance the ability of state and federal fire crews to reach the area faster and with less wear and tear on their vehicles. Additionally, improvements to Bautista Canyon Road would reduce the response time to emergency calls within the canyon for Valle Vista fire station from the north and Anza fire station from the south. Like law enforcement, provisions would have to be made to allow fire and emergency vehicle access into Bautista Canyon through the closed segment of road. These arrangements would be made between Riverside County, FHWA and the SBNF as part of final project approvals.

Health Services

Construction and operation of Alternative A would not adversely affect access to or otherwise impact the Hemet Valley Medical Center or other medical facilities in the Valle Vista and Anza areas.

Water

No water service exists in the project area and none would be provided as part of the proposed project. No impact to the provision of water service would occur.

Wastewater

No wastewater service exists in the project area and none would be provided as part of the proposed project. No impact to the provision of wastewater service would occur.

Solid Waste

Construction of Alternative A would generate solid waste. The waste material would be collected and disposed of at an appropriate landfill. Operation of Alternative A would not generate solid waste and, thus, would not impact solid waste management service.

Electricity and Fiber-Optic Cable

During site preparation, existing power lines and approximately seven AEC power poles along Bautista Canyon Road would be relocated. The power poles would be moved outside the roadway clear zone (see Figures 2.2-1 through 2.2-3) to ensure consistency with AASHTO Roadside Standards. If any poles are relocated outside of the ROW, a special use permit would be obtained from the USDAFS. The existing fiber-optic cable would be abandoned and new fiber-optic lines would be placed within the new roadway section and the ROW. No disruption of electric or cable services would occur, as electrical and fiber-optic service would be temporarily rerouted.

Therefore, no significant long-term, indirect, or unavoidable effects to public services/utilities would result with the implementation of Alternative A.

3.13.4.2 Alternative B

Public service/utility impacts would be the same as those described for Alternative A.

3.13.4.3 Alternative C

Public service/utility impacts would be the same as those described for Alternative A.

3.13.4.4 Alternative D

Under the No Action alternative, improvements to Bautista Canyon Road would not occur. Existing conditions would remain the same and would continue to make travel over this segment of the roadway very slow. Consequently, response times for fire and sheriff emergency vehicles using the unpaved portion of Bautista Canyon Road would continue to be adversely affected by road conditions. While the project presents an opportunity to improve overall accessibility to the study area, impacts to public services would not be significant under the applicable significance thresholds if the project were not constructed.

3.13.5 Mitigation

No significant impacts are anticipated; thus, no mitigation would be required.

3.14 Fire Hazard and Risk

This section discusses the existing setting and possible effects and mitigation measures pertaining to fire hazard and risk that could result from implementation of the proposed action.

3.14.1 Existing Conditions

<u>Fire History</u>

Due to the rural and mountainous nature of the REMAP area as well as the local vegetation, much of the plan area and the area around Bautista Canyon Road is subject to wildfires. This threat is present in both natural environments and built communities (County of Riverside 2002a) as shown in Figure 3.14-1. Several forms of chaparral occur within the study corridor including bigberry manzanita chaparral, chamise chaparral, red shank chaparral, scrub oak chaparral, and southern mixed chaparral (AMEC 2002b).

Chaparral vegetation is adapted to fire and under natural conditions burns regularly, forming a mosaic of differently aged stands. Chaparral is widely distributed throughout California on dry slopes and ridges at lower elevations where it occupies thin, rocky, or heavy soils. It typically consists of shrubs with resilient broad leaves; however, species composition varies considerably. Chaparral communities require fire to regenerate and the various species within chaparral have adapted to fire through unique methods. High fire hazard species, such as chamise, red shanks, California sagebrush, buckwheat, and sage, are found within these chaparral communities. These species contain volatile oils, which give chaparral and scrub their pungent odors. These oils are also highly flammable. Chaparral is also susceptible to the accumulation of discarded branches and other debris, which forms an understory of dry and discarded vegetation over long periods of time (Bakker 1971). Lightning causes most fires within the SBNF; however, in chaparral, the combination of weather, topography, the accumulation of dry, discarded vegetation, and human presence has increased the dangers that lead to large, high-intensity wildfires (USDAFS 1988).

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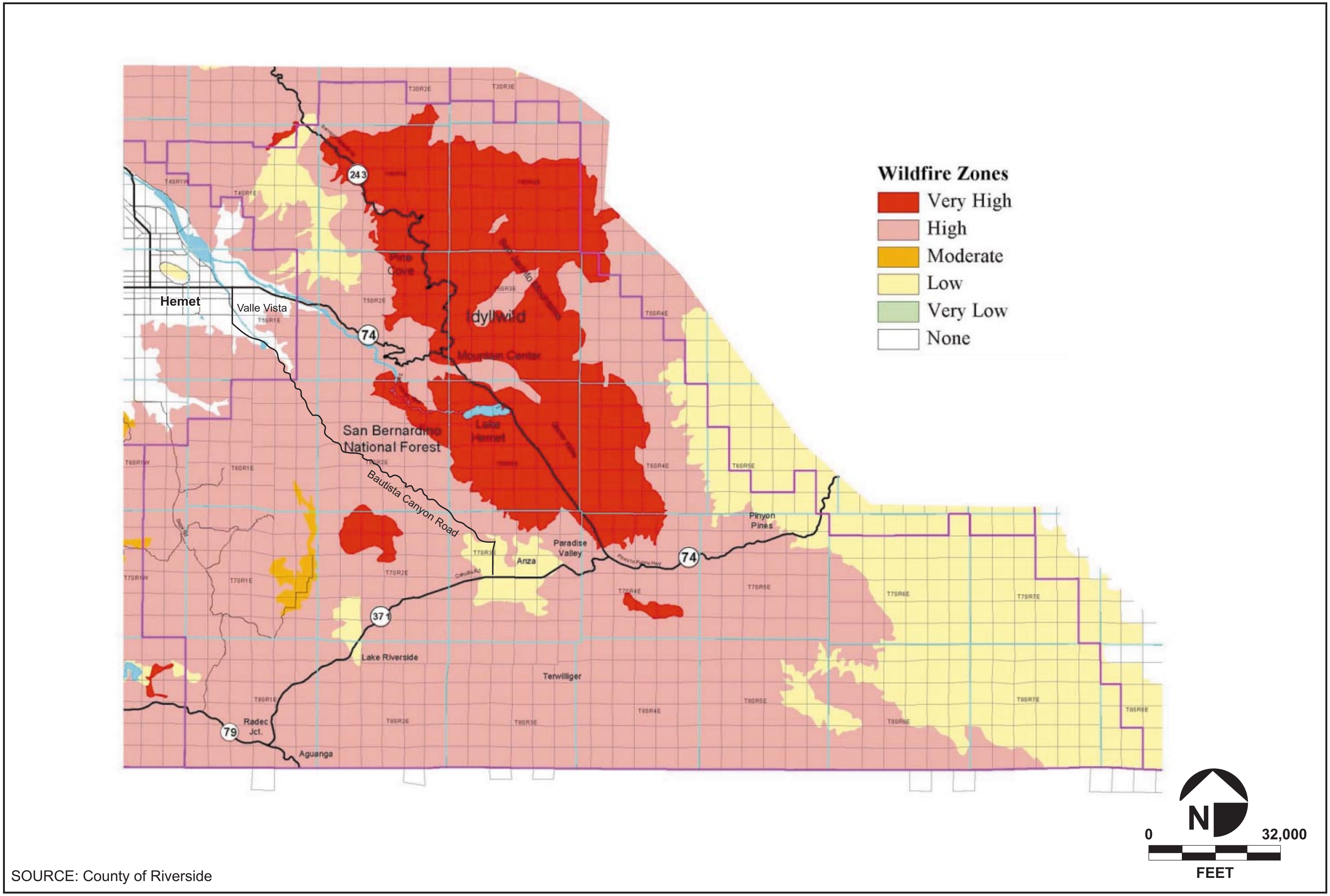

SOURCE: County of Riverside

FIGURE 3.14-1

Wildfire Susceptibility Zones

GRAPHIX/Environmental/Bautista Canyon Road/Wildfire Zones.FH8

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With the advent of fire prevention following formation of the San Jacinto Forest Reserve, fuel loads grew and the formerly self-limiting chaparral fires became much larger. Several large fires during the twentieth century had their origins in Bautista Canyon. In 1924, a large fire covering approximately 4,921 ha (12,160 ac) burned on the east side of Bautista Canyon Road in the northern section of the project study area. In the fall of 1928, a fire dubbed the "Worst Fire in the History of Riverside County" burned over 20,235 ha (50,000 ac) from Bautista Canyon all the way to the San Diego County line and beyond before it was contained. In November 1943, a fire started in Bautista Canyon and ran northeast over Rouse Ridge into Mountain Center. Soldiers from Camp Haan finally contained it before it spread into Idyllwild and Lake Hemet, but not before it burned several buildings (SRI 2003). A small fire of approximately 389 ha (960 ac) occurred in 1958 in the northern end of the project study area that burned on both sides of the roadway. Smaller fires have recently occurred within the project study area. In 1979, 130 ha (320 ac) burned the southern end of the project study area just south of Tripp Flats and 648 ha (1,600 ac) burned in 1994 to the north of the project study area just south of Fairview Avenue and in the orchard area (USFS 2003).

Beginning in the Great Depression years of 1933 and 1934 and continuing through 1942, the Civilian Conservation Corps (CCC) built many public works projects in the forest. These included firebreaks, truck trails, and hiking trails. The CCC operated out of five camps in the San Jacinto Mountains. It is likely that many of the forest roads in the project area, such as the Cottonwood Truck Trail, were constructed during this period. A CCC camp was planned for Bautista Canyon, but was never built (SRI 2003).

The CDC Bautista Conservation Camp was established in 1987 by the CDF in cooperation with the CDC and Riverside County Fire Department. It houses minimum-security prisoners who are trained as firefighters (SRI 2003).

USDAFS Fire Management Program

The USDAFS fire management program emphasizes prevention and suppression activities to include fire suppression, management of hazardous fuels (dead plant material), and fire restrictions. The USDAFS has 25 fire engines, 4 hand crews, and one bulldozer located throughout the SBNF during the summer months. Working in conjunction with firefighting aircraft, these crews down flames, construct fire lines, and mop up hot spots to protect local communities. During the winter months, the crews work at removing hazardous fuels to reduce fire hazard. The USDAFS also works closely with local communities, fire safety councils, and other fire agencies such as the Inland Empire Fuels Alliance to address hazardous fuel concerns. Projects such as construction of fuel breaks, thinning of trees, prescribed burning of brush, and removal of dead trees are helping to reduce fire hazard. An approved spark arrestor is required for any internal combustion engine operated on state or county highways or designated forest roads. These include chainsaws, generators, motorcycles, and OHVs (USDAFS 2003).

Fire Projections

With greater use of Bautista Canyon, there is a potential for more fires, which could be caused by accidents, smoking, shooting, arson, fireworks, etc.

3.14.2 Regulatory Setting

Federal

SBNF Land and Resource Management Plan (LMRP) – Fire and Fuels Goal

The SBNF plan has established the following goal to address the fire hazards within the SBNF:

- *Emphasize both a fuel reduction and resource improvement program through vegetation management and an efficient fire organization to minimize wildfire losses.*

3.14.3 Thresholds of Significance

The proposed action would result in a significant impact to the environment if it would:

- expose people or structures to a significant risk of loss, injury, or death involving wildland fires, particularly where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands; or
- impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.

3.14.4 Environmental Consequences

3.14.4.1 Alternative A

Historical data indicate that lightning-caused fire risk remains constant over time and is expected to remain so in the future. However, human-caused ignitions are more variable and highly dependent upon human activities. The potential exists for increased fire risk during project construction. Some slash[23] would be generated during the widening and/or realignment activities. This slash would be piled and removed off-site to an appropriate location for possible recycling and would not be burned on-site. Construction equipment operations or other construction activities could potentially start a fire in the project study area, especially adjacent to chaparral or any native dry vegetation. Gasoline- and diesel-powered equipment would be required to have appropriate spark arresters and/or catalytic converters. These fire prevention devices would reduce the fire risks to below a level of significance. Once the project is complete, a 0.6-m (2-ft) shoulder, a 1.2-m (4-ft) fore slope, and variable cut and fill slopes will be revegetated and would provide a buffer between the native vegetation and the roadway.

[23] A complex of woody forest debris left on the ground after logging, land clearing, thinning, pruning, brush removal, or natural processes such as ice or snow breakage, wind, and fire as defined by the USDAFS.

Any fire risk from project construction would be mitigated by fire prevention and precautionary requirements for construction projects such as fire safety orientation and education for all construction personnel prior to commencing construction operations. Disposal of flammable construction debris would occur off-site. Current and projected fire risk resulting from increased human use would be mitigated by SBNF fire prevention contact with forest users and signage in developed recreation areas. No additional mitigation would be necessary.

Upon project completion, it is expected that public use within Bautista Canyon would increase as described in Section 3.3. Thus, fire risk could increase in response to greater human presence within the canyon. Higher vehicle volumes could increase the probability of wildfires starting as a result of human carelessness and/or exhaust sparks. The addition of a buffer zone, as discussed above, would help reduce fire hazards. Implementation of Alternative A would improve fire and emergency vehicle response time within the project study area. As shown in Table 3.3-3, travel time along the 13.2 km (8.2 mi) segment of Bautista Canyon Road would decrease to 20 minutes under Alternative A.

The risk of wildfires starting inside the SBNF would be reduced with the USDAFS fire management program and other measures discussed above. The project would not expose the public to a higher wild fire potential; and thus, would not create or expose the public to a significant impact.

Emergency Response Plan

Implementation of Alternative A would not impair or interfere physically with an adopted emergency response plan or emergency evacuation plan. A positive benefit of the proposed action, recognized by the CDF, Riverside Unit and Riverside County Fire Department[24], would enhance the ability of fire crews to travel to Anza and the surrounding area more quickly with less wear and tear on their vehicles.

3.14.4.2 Alternative B

Fire hazard and risk effects would be the same as those described for Alternative A. The alignment deviation would not change the effects related to fire hazard or risk. However, implementation of Alternative B would provide for a safer and more rapid response within the canyon, as Alternative B would provide the fastest travel time of 14 minutes along the 13.2 km (8.2 mi) segment. The roadway design and surface would be improved, resulting in more rapid response times under safer driving conditions.

3.14.3.3 Alternative C

Fire hazard and risk effects would be the same as those described for Alternative A. Travel time for emergency responders would be 17 minutes along the 13.2 km (8.2 mi) segment of Bautista Canyon Road, which is 3 minutes less than for Alternative A and 3 minutes longer than for Alternative B. The roadway design and surface would be improved, which would result in

[24] Letter dated 13 February 2001 from the California Department of Forestry, Riverside Unit and Riverside County Fire Department in response to the Notice of Preparation for the proposed action.

more rapid response times under safer driving conditions. This would be a beneficial effect of implementing each build alternative.

3.14.4.3 Alternative D

Under the No Action alternative, conditions along Bautista Canyon Road would remain the same and would continue to make travel over this segment slower and more hazardous. Consequently, the response times for fire and sheriff emergency vehicles using the roadway would remain the same. In comparison to the build alternatives, this would result in a continued adverse effect.

Fire risk is not expected to change from its current high level. Over the long term, risk would not be expected to vary from historical levels and would remain significant and unmitigable.

3.14.5 Mitigation

No additional mitigation would be required.

4.0 DRAFT SECTION 4(F) EVALUATION

4.1 Purpose of Section 4(f) Evaluation

Section 4(f) of the U.S. DOT Act of 1966 (49 USC 303[c]) requires that the proposed use of any land within a publicly owned park or recreation area, wildlife and waterfowl refuge, or historic site that is on or considered eligible for the NRHP be given particular attention. Final action requiring the use of such land must document that there are no feasible and prudent alternatives to its use. Additionally, a full evaluation of measures to minimize harm to that resource must be made and documented. Section 4(f) applies to this proposed project because federal funds would be used, and the project would require use of land from Section 4(f) resources.

The use of a Section 4(f) resource occurs when (1) land from a Section 4(f) site is permanently acquired for a transportation project, (2) there is temporary occupancy of land that is adverse in terms of the statute's preservation purpose, or (3) the proximity impacts of the transportation project on the Section 4(f) site, without acquisition of land, are so great that the purposes for which Section 4(f) exists are substantially impaired. The latter "use" is also referred to as constructive use. Constructive use occurs when the transportation project does not incorporate land from a 4(f) resource, but the proximity impacts are so severe that the activities, features, or attributes that qualify a resource for protection under section 4(f) are substantially impaired. Section 4(f) is applicable to historic sites and archaeological resources when the resource is included on, or eligible for, the NRHP (23 CFR § 771.135[e]). Section 4(f) does not apply to archaeological sites where it is determined after consultation with the SHPO and the Advisory Council on Historic Preservation (ACHP) that the resource is important chiefly because of what can be learned by data recovery and has minimal value for preservation in place (23 CFR § 771.135[g][2]). Constructive use does not occur when compliance with the requirements of Section 106 of the NHPA (16 USC § 470) and related regulations for proximity impacts of a proposed project on an NRHP eligible site results in a finding of "no effect" or "no adverse effect" (36 CFR § 800.5).

As noted, the proposed project is within the BMU of the SBNF. The BMU is managed for range/wildlife, recreation, and watershed uses and falls under the "multiple use" provisions of Section 4(f). Title 23 CFR § 771.135(d) states that:

> *Where Federal lands or other public land holdings (e.g., State forests) are administered under statutes permitting management for multiple uses, and, in fact, are managed for multiple uses, Section 4(f) applies only to those portions of such lands which function for, or are designated in the plans of the administering agency as being for, significant park, recreation, or wildlife and waterfowl purposes. The determination as to which lands so function or are so designated, and the significance of those lands, shall be made by the officials having jurisdiction over the lands. The Administration will review this determination to assure its reasonableness. The determination of significance shall apply to the entire area of such park, recreation, or wildlife and waterfowl refuge sites*.

This Section 4(f) evaluation describes the proposed action, identifies Section 4(f) resources in the project area, describes the nature and extent of the use of these resources, evaluates alternatives that would avoid the use of Section 4(f) resources, and describes measures to minimize harm to the affected resources.

4.2 Proposed Action

4.2.1 Introduction

Bautista Canyon Road, FH 224, traverses the western portion of the BMU in the SBNF. The roadway provides north-south linkage between SH 74 in Valle Vista to the north and SH 371 in Anza to the south. In addition, USDAFS and fire/emergency medical vehicles use the roadway to access Bautista Canyon during emergencies. A 13.2 km (8.2 mi) segment of the roadway is narrow and unpaved, and contains many design and operation deficiencies that do not meet engineering standards. This unpaved segment has numerous sharp vertical and horizontal curves that limit sight distance. The road surface is also rough and washboarded, thus requiring regular maintenance. Furthermore, the road crosses Bautista Creek and numerous other drainages and becomes impassible during high flow events.

The proposed project would realign and pave the 13.2 km (8.2 mi) segment of Bautista Canyon Road consistent with current design standards and regulatory requirements. The roadway would be improved as a low-volume, two-lane rural collector

4.2.2 Purpose of and Need for Project

The purpose of and need for the project is based on the condition of the existing roadway, which prevents it from functioning as an efficient link in the Riverside County transportation system. The currently unpaved segment of Bautista Canyon Road contains many operational deficiencies that require considerable maintenance and impede safe access to and through a portion of the SBNF. A complete discussion of the purpose of and need for the project is provided in Section 1.4 of this EIS/EIR and is incorporated herein by reference.

4.2.3 Project Alternatives Using Section 4(f) Lands

A complete discussion of the project alternatives is provided in Chapter 2 and is incorporated herein by reference. A listing of these alternatives is provided below (see Section 2.2 for details).

- Alternative A – 40 km/h (25 mph) Design Speed
- Alternative B – 55 km/h (35 mph) Design Speed
- Alternative C – Combination 55/40/55 km/h (35/25/35 mph) Design Speed
- Alternative D – No Action

Alternatives A, B, and C have varying alignments based on proposed design speeds. Alternative C has been designated as the preferred alternative. Under alternative C, the design speed varies depending on topography. These design considerations are intended to maximize the functionality of the proposed roadway while minimizing adverse environmental effects.

Alternative A – 40 km/h (25 mph) Design Speed

The roadway would be paved for two lanes of traffic, one lane in each direction, with a pavement width of 7.8 m (26 ft) (see Figure 2.2-6). The total length of this alternative is approximately 12.3 km (7.6 mi) (see Figures 2.2-1 through 2.2-3). The proposed design speed for Alternative A is 40 km/h (25 mph). Alternative A would require approximately 225,000 m^3 (294,300 yd^3) of excavation and would result in approximately 16.1 ha (39.8 ac) of new disturbance (see Table 2.2-2). Alternative A would result in cut and fill slopes of up to 25 m (80 ft) in height. For 2025 conditions, the Bautista Canyon Road ADT volumes are projected to increase to levels that are between 1,100 and 1,800 vehicles per day depending upon location. These 2025 traffic volume projections are well within the capacity of a two-lane rural collector.

Alternative B – 55 km/h (35 mph) Design Speed

The roadway would be paved for two lanes of traffic, one lane in each direction, with a pavement width of 7.8 m (26 ft) (see Figure 2.2-6). The total length of this alternative is approximately 12.1 km (7.5 mi) (see Figures 2.2-1 through 2.2-3). The proposed design speed for Alternative B is 55 km/h (35 mph) (see Figures 2.2-1 through 2.2-3). Alternative B would require approximately 303,000 m^3 (396,400 yd^3) of excavation and would result in approximately 17.9 ha (44.2 ac) of new disturbance (see Table 2.2-2). Alternative B would result in cut and fill slopes of up to 25 m (80 ft) in height.

Alternative C – Combination 55/40/55 km/h (35/25/35 mph) Design Speed

The roadway would be paved for two lanes of traffic, one lane in each direction, with a pavement width of 7.8 m (26 ft) (see Figure 2.2-6). The total length of this alternative is approximately 12.3 km (7.6 mi) (see Figures 2.2-1 through 2.2-3). As noted, the study area was divided into three segments based on terrain. Under Alternative C, design speeds were incorporated accordingly to maximize travel efficiency while minimizing resource disturbance. Alternative C would incorporate a 55 km/h (35 mph) design speed in Segments 1 and 3 of Bautista Canyon Road where the terrain is flatter and a 40 km/h (25 mph) along Segment 2 where the terrain is mountainous. Implementation of Alternative C would require approximately 235,000 m^3 (307,400 yd^3) of excavation and would result in approximately 16.6 ha (41.0 ac) of new disturbance (see Table 2.2-2). Alternative C would result in cut and fill slopes of up to 25 m (80 ft) in height.

Alternative D – No Action (No Project)

The No Action (No Project) alternative is characterized as a "no-build" alternative. Under this alternative, no road improvements are proposed and Bautista Canyon Road would not be paved or realigned. Therefore, Alternative D would avoid the use of Section 4(f) resources. Although this alternative does not involve use of land from Section 4(f) resources, it does have indirect impacts on those resources. The existing road and traffic conditions along Bautista Canyon Road are expected to worsen as traffic volumes increase. Current maintenance of the roadway would continue and adequate maintenance would become increasingly expensive as the deficient aspects of the road remain unrepaired.

4.2.4 Other Alternatives Using Section 4(f) Lands, Considered, but Eliminated

The alternatives discussed below were evaluated and found not to be prudent because they are inadequate in terms of engineering design, traffic safety, or ineffectiveness in meeting other project goals and objectives. Based on these findings, the alternatives were eliminated from further review for the reasons described below. The alternatives that avoid some or all impacts are discussed under each Section 4(f) resource.

- Proposed Variations to Build Alternatives
- Pave Existing Bautista Canyon Road
- Reconstruct and No Pave
- New Route Using Existing Streets
- New Route Through Bautista Canyon
- 25 or 32 km/h (15 or 20 mph) Design Speed for Entire Route
- Alternative Transit
- Limited Access Alternative

Proposed Variations to Build Alternatives

Alternatives A, B, and C have undergone a review process to examine potential effects to biological, cultural, and other resources. Where practicable, alternatives were revised to reflect more environmentally sensitive alignment variations within each alternative.

Ridge #1 Alignments: The existing roadway through this area descends into the drainage for Bautista Creek and crosses the creek with a low water crossing (see Figure 2.2-1). The existing alignment contains multiple sharp horizontal curves that could not accommodate the proposed design speeds.

Originally, there were two alignment alternatives at the Bautista Creek crossing (Ridge #1) in addition to the proposed alignment. One was a straight crossing that cut off the existing horseshoe alignment. This alignment bridged the creek drainage by continuing southeast where the existing road turns sharply to the north (the beginning of the “horseshoe”) and then reconnected at the eastern end of the “horseshoe.” In an effort to avoid impacts to wetlands, a second alignment (the “no bridge” alignment) was identified, which closely followed the existing alignment based on a 40 km/h (25 mph) design speed. The “no bridge” alignment shifted to the north along the ridgeline and then turned east to cross Bautista Creek and one other large drainage. It then reconnected with the existing roadway approximately 200 meters to the southeast of the end of the existing “horseshoe.” Preliminary review of these alignments indicated that each would result in unacceptable negative impacts to environmental resources.

Therefore they were not prudent. As a result, the proposed alignment was identified for this location and these early Ridge #1 alignments were eliminated from further review.

Ridge #2 Alignment: Ridge #2 is the location of another existing “horseshoe” curve that needs to be realigned to accommodate the 40 km/h (25 mph) design speed (see Figure 2.2-2). The original design followed the existing roadway alignment on the north side of the hill along Bautista Creek (the top of the “horseshoe”). This alignment impacted wetlands and had a negative impact on wildlife. In order to reduce these impacts, the proposed alignment at Ridge #2 was shifted to the south of the hill along a natural drainage channel grade, eliminating the impacts to the wetlands and other environmental resources. Consequently, the earlier Ridge #2 alignment was eliminated from analysis in the EIS/EIR.

Pave Existing Bautista Canyon Road

Paving the existing road alignment was considered but eliminated because it would not meet the project’s objectives to improve safety and emergency access. The existing roadway was not engineered to current standards and is too narrow in several locations for vehicles to pass safely. Furthermore, basic roadway geometry is poor, with numerous sharp horizontal and vertical curves that limit sight distance. Additionally, roadway drainage is poor and road washouts and rockfalls caused by storm water runoff and seasonal flooding at the low-water crossings of Bautista Creek and other drainages would prevent use of the road during storm events. Paving the existing route would leave these deficiencies in place and would not be an appropriate use of federal funds because suitable design standards would not be achieved and it would not accomplish the purpose of or satisfy the need for the proposed project. This alternative is not prudent.

Reconstruct and No Pave

Implementation of this alternative would involve reconstructing the roadway to one of the build alternative standards; however, the surface would not be paved. This alternative was eliminated because it would result in equal direct environmental effects as the build alternatives and greater indirect effects resulting from the unpaved surface. This alternative would not adequately address maintenance needs because the unpaved surface would continue to require regular maintenance to maintain a safe, smooth driving surface. Thus, implementation of this alternative would not accomplish the purpose of or satisfy the need for the project and does not reduce or eliminate impacts to Section 4(f) properties

New Route Using Existing Streets

A new route using roads such as SH 371 to SH 74 to the east or SH 371 to Wilson Valley Road/Sage Road/State Street to the west was considered. The existing traffic levels on Bautista Canyon Road are very low. At the Bautista Conservation Camp the traffic volume is only 88 vehicles per day on a Saturday, while at the north end of the project east of Fairview avenue the volume is 134 on the same day. This indicates that the through traffic volume is very low. Because taking the alternate route (using State Highways 74/371) is already faster than the existing road, and the very low volume of traffic of Bautista Canyon Road, it is reasonable to assume that all or virtually all of the traffic on Bautista Canyon Road is there for recreation or sightseeing rather than through traffic. Therefore, it is unlikely that implementing the New Route Using Existing Streets Alternative would take any traffic off Bautista Canyon Road. This alternative was eliminated from further consideration because it would not improve access to the SBNF or provide a more efficient link between Valle Vista and Anza. The existing road and traffic conditions along Bautista Canyon Road are expected to worsen as traffic volumes increase. Current roadway maintenance would continue and adequate maintenance would become increasingly more expensive as the deficient aspects of the road remain unrepaired. This alternative is not prudent.

New Route Through Bautista Canyon

A completely new alignment through Bautista Canyon was considered. This alternative was eliminated because construction of a new road would have greater environmental effects than those projected for reconstruction of the existing Bautista Canyon Road. Additionally, the SBNF opposed implementation of this alternative. Table 2.2-2 shows the amount of existing roadway that is being utilized and the total amount of new disturbance from each of the build alternatives. A new route through Bautista Canyon would result in a significant increase in new disturbance over the build alternatives considered in this EIS/EIR, amplifying the potential for significant environmental effects. This alternative is not prudent.

25 or 32 km/h (15 or 20 mph) Design Speed for Entire Route

A 25 or 32 km/h (15 or 20 mph) design speed for Bautista Canyon Road was considered but eliminated after review of established design standards because the projected traffic volumes would be too high for this slow of a design speed. Projected traffic volumes indicate a rural collector classification, which require design speeds of 40-48 km/h (25-30 mph). Furthermore, environmental impacts would be similar to those identified for the proposed action due to the similarity in design criteria and the required curve widening needed to accommodate the design speed. Therefore, no advantage (environmental or otherwise) would be realized by selecting this alternative. This alternative is not prudent.

Alternative Transit

Alternative means of transit were considered and eliminated from further consideration because of the remote location and the lack of connectivity to other existing mass transit facilities. Additionally, current deficiencies make this unusable as a transit route. As such, transit or other modes of transportation would not meet project objectives, including the provision of a safe vehicle travel route and improved access for emergency vehicles. This alternative is not prudent.

Limited Access Alternative

Bautista Canyon Road would be limited to Forest Service access and Native American plant collection from just south of the Conservation camp to just north of Tripp Flats Road. Cul-de-sacs would be constructed at these locations along with access gates. The Forest Service would control the gates at these locations and would coordinate with the Native Americans concerning their access. Alternative routes, SH 74 to SH 371 and/or State Street to Sage Road, would be improved to handle the additional traffic volume diverted from Bautista Canyon Road. The degree of improvements to these roadways would be determined based on the existing roadway's ability to handle the additional traffic.

This alternative is not prudent because it would remove a transportation link in the County's circulation system which is inconsistent with the County's General Plan, specifically with REMAP policy 8.1 and 8.7; it would remove one potential access route out of the Anza Valley in the event of a fire; it would not provide an improved road surface that would allow for faster travel by fire-fighting equipment, improved access by Forest Service enforcement vehicles, and County Sheriff vehicles; it would not allow the public to travel by automobile through a portion of the SBNF that had been available and planned for such use and access to the existing Alessandro Trail would be restricted; and improvements to SR 74/SR 371 and/or State Street/Sage Road would have potentially significant environmental impacts which would have to be addressed.

4.3 Section 4(f) Resources

There are five primary Section 4(f) properties involved with the proposed action that are found within the project area:

- Juan Bautista de Anza National Historic Trail
- Alessandro Trail
- Bautista Canyon Archaeological District
- Anza NHT Historic Transportation Corridor
- Bautista Canyon Ethnobotanical Traditional Cultural Property

4.3.1 Park Land and Recreation

Juan Bautista de Anza National Historic Trail (Anza NHT)

<u>Affected Environment</u>

The Anza NHT is considered a recreation resource under Section 4(f). It is also part of the historic transportation corridor. Impacts to the historic transportation corridor are discussed below in Section 4.3.2. In 1990, Congress acknowledged the significance of the Anza expeditions by establishing the Anza NHT. The Anza NHT was established to commemorate the Spanish colonizing expeditions from Sonora, Mexico, into Upper California in the 1770s. In August 1990, Congress passed Public Law 101-365 making the Juan Bautista de Anza National Historic Trail (Anza NHT) a component of the National Trails System, to be administered by the National Parks Service (NPS). The Anza NHT is an historic route that consists of "recreational trail" components and "auto route" components. A designated recreational trail consists of existing trails that are linked up along the historic route. Linked trails serve as a Recreational Trail Retracement Route. Of the 1,200 mi length of the Anza NHT from Nogales, Arizona, to San Francisco, California, 161 mi are components that cross federal lands. The historic route enters Riverside County from the south via Coyote Canyon, crosses the Cahuilla Indian

Reservation, and descends to the Hemet/San Jacinto area via Bautista Canyon. The route follows the San Jacinto River to Mystic Lake, then through the Bernasconi Pass near Perris Lake State Recreation Area, passes through March Air Force Base to enter the urbanized area of Riverside today. It crosses the Santa Ana River and proceeds westerly through Pedley toward Mission San Gabriel (NPS1996: C-17).

The only trail component through a national forest is the 8 mi segment of Bautista Canyon Road that passes through the SBNF (i.e., the location of the proposed project). Here, the Anza NHT consists of a designated auto route (marked) but no recreational trail. Because this currently unpaved section of the trail route crosses federal lands in an area that is little changed from the 1774-1776 landscape that Anza's expeditions traversed, it has been identified as 1 of 17 "high-potential" segments "to interpret the trail's historical significance and to provide opportunities for high-quality recreation" (NPS 1996: 1-2, 20-23). The designated auto route (marked) through Bautista Canyon follows S22 to SR 79 north, to SR 371 west, and to Bautista Canyon Road. Bautista Canyon Road becomes Fairview Avenue. The auto route follows Fairview Avenue to Florida Avenue, turns west on Florida Avenue to the Ramona Expressway to I-215 northwest, to SH 60.

There are no existing trails that serve the purpose of a recreational trail retracement route through Bautista Canyon. Current use of the unpaved portion of Bautista Canyon Road by pedestrians, equestrians, or bicyclists is passive at best. The Plan states that a bicycle route could follow existing Bautista Canyon Road. The City of Riverside Trails Master Plan identifies trails which approximate the historic route and which connect to the existing Santa Ana River National Recreation Trail. This river trail could be used to skirt highly urbanized areas in San Bernardino County to connect with the County of Los Angeles Schabarum Trail via planned open space on the San Bernardino-Orange County line south of the Chino Hills. According to the Comprehensive Management and Use Plan for the Anza NHT, these trail connections could be marked as recreational links to the Anza NHT and would provide an off-road recreational experience of an environment somewhat similar to that Anza experienced (NPS 1996: C-17).

Environmental Consequences

Implementation of Alternatives A, B, or C would have temporary and permanent effects on the Anza NHT. The roadway would be temporarily closed for up to 16 months during construction under all the build alternatives. Thus, access to the NHT auto route would be restricted. The County of Riverside and FHWA will define an alternative route in consultation with the NPS and ensure appropriate signage is in place prior to initiating the road closure. The impact would be temporary and occur only during construction.

As discussed in Section 3.10, each build alternative would result in a visual impact. The proposed road would dominate the existing landscape in all aspects including form, line, color, and texture and it would change the landscape character of the canyon. The proposed cuts and fills would dominate as a negative feature along the road edges and change the natural form, line, color, and texture of the existing landscape, degrading the natural scenery of the canyon. Paving of this segment of the roadway would also reduce the rustic characteristic of the roadway. Negative visual impacts, however, would be reduced by implementation of the mitigation measures recommended in Section 3.10.5.

Although paving of this segment of the roadway would reduce the rustic characteristic of the roadway, reconstruction and paving of the roadway should not diminish the ability to interpret the trail's historical significance. Moreover paving this segment of the roadway with a two-foot paved shoulder would provide a safer route for bicyclists and not preclude them from use of the road. The 13.2 km (8.2 mi) segment of Anza NHT is also an historic travel and auto route through Bautista Canyon. The improved roadway would provide a safer route for all users. It would increase the opportunity for more recreational users to access the canyon and experience the historic landscape that is relatively unchanged since the early explorations of the 1700s, although the proposed project will introduce some visual changes.

Proposed Alternatives A, B, and C include new roadway alignments based on varying design speeds. The unpaved roadway segment would be reconstructed and would be 1.8 to 3.0 m (6 to 10 ft) wider than the existing unpaved segment of the Anza NHT for all the build alternatives. The length of the existing unpaved trail component of the Anza NHT is 113.2 km (8.2 mi). Compared to the existing Anza NHT segment, Alternatives A and C would decrease the roadway length by 0.6 km (0.4 mi) and Alternative B would decrease the roadway length by 0.8 km (0.5 mi). The change in length of the Anza NHT would not detract from views of an unchanged landscape and potential to interpret the trail's historical significance along the auto route. Therefore the change in length is not a Section 4(f) impact.

All the build alternatives also propose a 0.1 ha (0.3 ac) interpretive overlook area on a point overlooking Bautista Canyon that would provide an opportunity for all users to have a panoramic view of the canyon and learn more about the historic use of the canyon (see Figure 2.2-5).

Avoidance Alternatives

Alternative D "No Action" would leave Bautista Canyon Road in its current condition, avoiding the temporary closure of this segment of the Anza NHT and the visual impacts to the historic landscape. The existing road and traffic conditions along Bautista Canyon Road are expected to worsen as traffic volumes increase. Current roadway maintenance would continue and adequate maintenance would become increasingly more expensive as the deficient aspects of the road remain unrepaired. This alternative is not prudent.

The Pave Existing Bautista Canyon Road Alternative would partially avoid the temporary closure of this segment of the Anza NHT by reducing or eliminating the time the road would need to be closed. The alternative would also partially avoid visual impacts; the only impact would be to the rustic characteristic of the roadway. However, this alternative is not prudent for the reasons indicated in Section 4.2.4 above.

The Reconstruct and No Pave Alternative would partially avoid visual impacts by maintaining a more rustic roadway surface. However, this alternative is not prudent for the reasons indicated in Section 4.2.4 above.

The New Route Using Existing Streets Alternative, utilizing existing roads such as SH 371 to SH 74 to the east or SH 371 to Wilson Valley Road/Sage Road/State Street to the west, would totally avoid impacts to the Anza NHT, similar to Alternative D. However, this alternative is not prudent for the reasons indicated in Section 4.2.4 above.

The Alternative Transit Alternative would avoid the temporary closure of this segment of the Anza NHT and the visual impacts to the historic landscape, similar to Alternative D. However, this alternative is not prudent for the reasons indicated in Section 4.2.4 above.

Measures to Minimize Harm

The visual effect of large fills can be reduced with appropriate revegetation. The proposed design minimizes cut and fill slopes; thus, reducing the project's footprint and the amount of new disturbance. All disturbed areas and abandoned road segments would be revegetated with plant species native to the canyon where possible. On steeper slopes and rock faces, rock coloring would be used to minimize visual effects. To minimize effects associated with the temporary closure of the Anza NHT auto route, the FHWA recommends signing an alternate route using SH 371 and/or 74. Specific details would be determined during consultation with the NPS. Measures to minimize adverse effects are described in detail in Section 3.10.5 (visual resources), and Section 3.11.5 (recreation).

Alessandro Trail

Affected Environment

The Alessandro Trail is a 24 km (15 mi) trail that begins at the top of Tripp Flats, just north of the Tripp Flats Forest Service Station at an elevation of approximately 1,200 m (4,000 ft) and approximately 1.6 km (1 mi) from Bautista Canyon Road. The trail proceeds down toward Bautista Creek and the CDC Bautista Conservation Camp at Bautista Canyon Road. OHV users mainly use this trail. The trailhead does not have a designated parking area. Trail users typically park along the roadside or in a small (one to two cars) dirt area that currently exists at the trailhead (see Figure 1.3-2).

Environmental Consequences

Implementation of Alternatives A, B, and C would have a beneficial effect for Alessandro Trail users under all these build alternatives. As noted in Section 2.2, the proposed build alternatives would include construction of a 0.1 ha (0.3 ac) OHV trailhead pullout at the Alessandro Trailhead (Figure 2.2-5). This facility would be surfaced with decomposed granite and sized to accommodate approximately five vehicles and trailers. A small informational bulletin board is also proposed. As noted above, the trailhead currently does not have a designated parking area. Thus, users are required to park along the roadside or in a small dirt area. The proposed parking area would improve user safety by minimizing conflicts between users loading/unloading OHV equipment and other motorists traveling on the roadway. Removal of some scattered brush would occur as a result of clearing and grading for the pullout area. This would not adversely affect trail or user access during construction. Improved access to OHV and hiking areas within the SBNF may increase the number of users. It is assumed all users would be required to purchase Adventure Permits from the SBNF and comply with any restrictions and/or requirements. Activities would be restricted to daytime use; and thus, would be consistent with the SBNF LRMP recreation goal. Thus, while use of the area may change as a result of the project, no significant adverse impacts are anticipated.

Avoidance Alternatives

A trailhead pullout and parking area at the existing Alessandro Trail crossing would be included as part of all the proposed build alternatives. The only avoidance alternatives would be Alternative D "No Action," "New Route Using Existing Streets," "New Route Through Bautista Canyon," and "Alternative Transit." These alternatives would leave the unpaved segment of Bautista Canyon Road in its current condition. The existing deficient characteristics of the roadway would remain. User safety would not improve and fewer people would have the opportunity to use the Alessandro Trail. These alternatives would not be prudent.

Measures to Minimize Harm

All disturbed areas adjacent to the trailhead would be revegetated with appropriate seed mixes corresponding to the adjacent plant community. Construction of the OHV pullout at the Alessandro Trailhead would compensate for any changes in use.

4.3.2 Cultural and Historic Resources

Bautista Canyon Archaeological District

Affected Environment

A total of 15 prehistoric and protohistoric (i.e., resources associated with early Native American occupation) archaeological resources, as identified in Section 3.8, would be affected by the proposed project. Each is eligible for listing in the NRHP under Criterion (d) of Section106 of the NHPA because they have the potential to yield information important to prehistory or history. Sites BC-3, BC-4, BC-6, BC-7, BC-14, and BC-15/20 individually and collectively contain important information on chronology, settlement and subsistence, and Native American land use of Bautista Canyon. Sites BC-8 and BC-13 contribute important information regarding the patterning of plant resource collecting and processing, and sites BC-1, BC-9, BC-10, BC-16, BC-18, and BC-21 contribute information related to lithic technology and exploitation of lithic resources in the canyon. The archaeological resources of the canyon as a whole have generally good integrity, and the overall pattern of aboriginal land use remains intact (SRI 2003). A description of each site is found in Table 3.8-1. There is evidence of some vandalism in the form of unauthorized excavation and artifact collection at site BC-3. Portions of sites BC-6 and BC-7 have been disturbed by road construction and maintenance, and OHV use.

The pattern of prehistoric and protohistoric archaeological sties, along with specific and general plant collection areas important in Native American cultural traditions, reflects Native American use of a landscape that retains integrity of location, setting, materials, feeling, and association that is hardly altered from its period of significance. Therefore, the prehistoric and protohistoric sites recorded in the archaeological studies for this project (SRI 2003), along with several previously recorded archaeological sites (RIV-1889, RIV-3090, RIV-3091, and RIV-3092) immediately adjoining the study area in the CDC Bautista Conservation Camp, are considered elements of an archaeological district.

<u>Environmental Consequences</u>

Implementation of Alternatives A, B, and C could cause direct physical destruction or damage to seven archaeological sites. These are: BC-7, BC-9, BC-4, BC-13, BC-3, BC-16; and BC-1. Preliminary designs would have affected site BC-6 also; however, the portion of the project in the vicinity of that site has been realigned to avoid the site completely. A detailed discussion regarding effects and disturbance to these sites is described in Section 3.8, Cultural Resources.

Title 23 CFR § 771.135(g)(2) states that:

> *Section 4(f) does not apply to archeological sites where the Administration, after consultation with the SHPO and the ACHP, determines that the archeological resource is important chiefly because of what can be learned by data recovery and has minimal value for preservation in place. This exception applies both to situation where data recovery is undertaken or where the administration decides, with agreement of the SHPO and, where applicable, the ACHP not to recover the resource*.

Each of the affected sites is eligible for listing in the NRHP only under Criterion (d) of Section106. Therefore, Section 4(f) does not apply to these sites. Section 4(f) requirements apply to an archaeological district the same as they do to an archaeological site (only where preservation in place is warranted). In addition, Section 4(f) would not apply if, after consultation with the SHPO and the ACHP, it is determined that the project occupies only a part of the district that is important chiefly because of what can be learned by data recovery and has minimal value for preservation in place, provided such portion could be occupied without adversely affecting the integrity of the archaeological district. Therefore, Section 4(f) does not apply to the Bautista Canyon Archaeological District.

Anza NHT Historic Transportation Corridor

<u>Affected Environment</u>

Bautista Canyon Road (BC-23) is a historical-period cultural resource in its own right, having been constructed during 1914-1917, and a portion of an apparent earlier alignment (BC-22) may date to the 1890’s. These two historic period sites listed in Table 3.8-1 are eligible for listing under Criteria (a) and (b) of the NHPA because of their association with events and persons that have made significant contributions to history. Because the historic landscape of Bautista Canyon is virtually intact and possesses integrity of setting, feeling, and association, sites BC-23 and BC-22 are considered contributing elements of a larger historic transportation corridor known as the Juan Bautista de Anza National Historic Trail. The period of significance for BC-23 extends from 1774-1917 and is considered significant at a local, state, and national level, while the period of significance for BC-22 extends from 1890-1925 and is considered significant at the local level. The historic transportation corridor is a dynamic cultural feature evolving from prehistoric Native American use, passage of the Anza expedition, use by cattlemen to move stock from the valley to mountain pastures, use as a wagon road, and later improved to an automobile road.

Environmental Consequences

As discussed in Section 3.8, each build alternative would result in an adverse effect to the historic transportation corridor due to visual impacts to the historic landscape. The proposed road would dominate the existing landscape in all aspects including form, line, color, and texture and it would change the landscape character of the canyon. The proposed cuts and fills would dominate as a negative feature along the road edges and change the natural form, line, color, and texture of the existing landscape, degrading the natural scenery of the canyon. Paving of this segment of the roadway would also reduce the rustic characteristic of the roadway.

Avoidance Alternatives

Alternative D “No Action” would leave Bautista Canyon Road in its current condition, avoiding the visual impacts to the historic landscape. The existing road and traffic conditions along Bautista Canyon Road are expected to worsen as traffic volumes increase. Current roadway maintenance would continue and adequate maintenance would become increasingly more expensive as the deficient aspects of the road remain unrepaired. This alternative is not prudent.

The Pave Existing Bautista Canyon Road Alternative would avoid visual impacts to the historic landscape, but there would still be impacts to the rustic characteristic of the roadway. However, this alternative is not prudent for the reasons indicated in Section 4.2.4 above.

The Reconstruct and No Pave Alternative would partially avoid visual impacts by maintaining a more rustic roadway surface. However, this alternative is not prudent for the reasons indicated in Section 4.2.4 above.

The New Route Using Existing Streets Alternative, utilizing existing roads such as SH 371 to SH 74 to the east or SH 371 to Wilson Valley Road/Sage Road/State Street to the west, would totally avoid impacts to the historic transportation corridor, similar to Alternative D. However, this alternative is not prudent for the reasons indicated in Section 4.2.4 above.

The Alternative Transit Alternative would avoid the visual impacts to the historic landscape, similar to Alternative D. However, this alternative is not prudent for the reasons indicated in Section 4.2.4 above.

Measures to Minimize Harm

The visual effect of large fills can be reduced with appropriate revegetation. The proposed design minimizes cut and fill slopes; thus, reducing the project's footprint and the amount of new disturbance. All disturbed areas and abandoned road segments would be revegetated with plant species native to the canyon where possible. On steeper slopes and rock faces, rock coloring would be used to minimize visual effects. Measures to minimize adverse effects are described in detail in Section 3.8.5 (cultural resources) and Section 3.10.5 (visual resources).

Bautista Canyon Traditional Cultural Property (TCP)

Affected Environment

The ethnobotanical resource of the canyon, including basketry material collecting locations (BC-6 and BC-4), and the ethnographical landscape that contains them, and the associated prehistoric and protohistoric archaelological resources, are important in maintaining the cultural identity of the local Cahuilla people and other traditional practitioners. The Cahuilla have historically and still use numerous plants for food, medicine, construction, and utilitarian purposes. The Cahuilla and other tribes in the area value the isolated setting and serenity with the low traffic volume that exists in Bautista Canyon, where prayers are said before they collect plants. Tribal members often come to Bautista Canyon to collect plants. The unpaved segment of Bautista Canyon Road is located mainly along the bottom of the canyon near Bautista Creek, which provides convenient access to plant collecting areas. Table 3.8-2 provides a brief summary of each plant species that were used by the Cahuilla.

The canyon is considered to be eligible for listing in the NRHP as a TCP under Criterion (c) of the NHPA (CSRI 2003). The boundaries of the TCP minimally include the study corridor for the ethnobotanical study (i.e., 500 m [1,640 ft] on each side of the road for the length proposed project). Although Native Americans consulted during the course of cultural resources studies consider the TCP to include the entire canyon, it is not feasible to define the boundaries beyond the area investigated.

Environmental Consequences

Access changes associated with implementation of Alternative A, B, or C would result in adverse effects to plant collecting areas. Changes in the road's alignment would create new accessible areas, while reducing access to existing accessible areas. All of the build alternatives would result in higher speeds, grade changes, and steep embankment slopes that would make it more difficult for traditional practitioners to pull off the road and/or access some plant areas.

The proposed build alternatives would introduce noise and visual intrusions that may affect the serenity currently associated with plant gathering in Bautista Canyon, thus diminishing the integrity of the setting, feeling, and association of the TCP. The proposed road would dominate the existing landscape in all aspects including form, line, color, and texture and it would change the landscape character of the canyon. The proposed cuts and fills would dominate as a negative feature along the road edges and change the natural form, line, color, and texture of the existing landscape, degrading the natural scenery of the canyon. Large cuts that are mostly composed of exposed rock would remain a negative visual impact for decades if left untreated. The proposed alternatives would also add increased traffic through the canyon as described in more detail in Section 3.3.

Avoidance Alternatives

Alternative D “No Action” would leave Bautista Canyon Road in its current condition; avoiding the visual impacts and intrusions and would not change the existing access practitioners have to plant collection sites. The existing road and traffic conditions along Bautista Canyon Road are expected to worsen as traffic volumes increase. Noise would continue to worsen as well. Current roadway maintenance would continue and adequate maintenance would become increasingly more expensive as the deficient aspects of the road remain unrepaired. This alternative is not prudent.

The Pave Existing Bautista Canyon Road Alternative, New Route Using Existing Streets Alternative, and Alternative Transit Alternative, similar to Alternative D, would avoid visual impacts and intrusions and would not change the existing access practitioners have to plant collection sites. However, traffic condition and noise would continue to worsen as traffic volumes increase. These alternatives are not prudent for the reasons indicated in Section 4.2.4 above.

Measures to Minimize Harm

The proposed build alternatives have been redesigned with steeper slopes in several locations to avoid direct adverse effects to plants in known basketry material and medicinal plant collecting areas, particularly with regard to Juncus stands located at sites BC-6 and BC-4. A comprehensive revegetation program would be implemented with all the build alternatives to mitigate the loss of existing vegetation. Mitigation for impacted plant communities would occur at approximately a 1:1 area ratio through the revegetation of the abandoned road segments (see Tables 3.6-6 and 3.6-7). Revegation would be accomplished using species native to the canyon. The program would include appropriate seed mixes corresponding to the adjacent plant community. In consultation with Native American tribes, the SBNF, NPS, SHPO, and ACHP, a MOA would be prepared containing provisions for the FHWA and the County of Riverside to prepare and implement a treatment plan for archaeological sites subject to direct adverse effects. The treatment plan would be designed to enhance the growth and distribution of desirable species and minimize changes in the canyon setting of the project. The measures listed above are discussed in more detail in Section 3.6, Biological Resources and Section 3.8, Cultural Resources.

4.4 Alternatives That Avoid All Section 4(f) Resources

4.4.1 Alternative D, No Action

Alternative D would leave Bautista Canyon Road in its current condition. The existing deficient characteristics of the roadway would remain. The existing road and traffic conditions along

Bautista Canyon Road are expected to worsen as traffic volumes increase. Current maintenance of the roadway would continue and adequate maintenance would become increasingly expensive as the deficient aspects of the road remain unrepaired. This alternative does not address the purpose and need for the project and is not prudent. It should be noted that although this alternative does not involve use of land from Section 4(f) resources, it does have indirect impacts on those resources, such as increasing noise due to traffic increases and ongoing impacts to archaeological sites.

4.4.2 New Route Using Existing Streets

The New Route Using Existing Streets Alternative, utilizing existing roads such as SH 371 to SH 74 to the east or SH 371 to Wilson Valley Road/Sage Road/State Street to the west, would avoid all Section 4(f) resources. The existing traffic conditions along Bautista Canyon Road would continue, and current maintenance of the roadway would continue. This alternative would not adequately address safety and maintenance needs on the existing road, or meet the purpose of and need for the project. Therefore, implementation of this alternative would not be prudent.

4.4.3 Limited Access Alternative

Bautista Canyon Road would be limited to Forest Service access and Native American plant collection from just south of the Conservation camp to just north of Tripp Flats Road. Cul-de-sacs would be constructed at these locations along with access gates. The Forest Service would control the gates at these locations and would coordinate with the Native Americans concerning their access. Alternative routes, SH 74 to SH 371 and/or State Street to Sage Road, would be improved to handle the additional traffic volume diverted from Bautista Canyon Road. The degree of improvements to these roadways would be determined based on the existing roadway’s ability to handle the additional traffic.

This alternative is not prudent because it would remove a transportation link in the County's circulation system which is inconsistent with the County's General Plan, specifically with REMAP policy 8.1 and 8.7; it would remove one potential access route out of the Anza Valley in the event of a fire; it would not provide an improved road surface that would allow for faster travel by fire-fighting equipment, improved access by Forest Service enforcement vehicles, and County Sheriff vehicles; it would not allow the public to travel by automobile through a portion of the SBNF that had been available and planned for such use and access to the existing Alessandro Trail would be restricted; and improvements to SR 74/SR 371 and/or State St/Sage Rd would have potentially significant environmental impacts which would have to be addressed.

4.5 Summary of Impacts to Section 4(f) Properties

Table 4.5-1 summarizes the impacts to Section 4(f) properties. With one exception, all the build alternatives would result in similar impacts to Section 4(f) properties: Alternative B would result in the greatest impact because the required earthwork would create the largest amount new land disturbance and therefore the largest visual impact.

Table 4.5-1
Summary of Impacts to Section 4(f) Properties

Alternative	Feasible and Prudent	Harm to Anza NHT	Harm to Alessandro Trail	Harm to Archaeological District (No Section 4(f) impact)	Harm to Historic Transportation Corridor	Harm to TCP
A	Yes	Medium	Low	--	High	High
B	Yes	High	Low	--	High	High
C	Yes	Medium	Low	--	High	High
D	No	Avoids	Avoids	--	Avoids	Partially Avoids
Proposed Variations to Build Alternatives	No	Does Not Avoid	Does Not Avoid	--	Does Not Avoid	Does Not Avoid
Pave Existing Bautista Canyon Road	No	Partially Avoids	Does Not Avoid	--	Partially Avoids	Partially Avoids
Reconstruct and No Pave	No	Partially Avoids	Does Not Avoid	--	Partially Avoids	Does Not Avoid
New Route Using Existing Streets	No	Avoids	Avoids	--	Avoids	Partially Avoids
New Route Through Bautista Canyon	No	Does Not Avoid	Avoids	--	Does Not Avoid	Does Not Avoid
25 or 32 km/h (15 or 20 mph) Design Speed for Entire Route	No	Does Not Avoid	Does Not Avoid	--	Does Not Avoid	Does Not Avoid
Alternative Transit	No	Avoids	Avoids	--	Avoids	Partially Avoids

km/h – kilometers per hour
mph – miles per hour
NHT – National Historic Trail
TCP – Traditional Cultural Property

4.6 Coordination

The FHWA and the County of Riverside have worked closely with the SBNF, NPS, local Native American tribes, and other practitioners of traditional Native American culture throughout this environmental process and the design phases to assure that all reasonable consideration for protection and enhancement of the Section 4(f) resources are carefully considered. To date, this coordination has taken the form of meetings, field reviews, and correspondence over a 3-year period that began in 2001. Coordination meetings and field reviews will continue throughout the environmental review process. Project coordination and efforts are summarized in Section 1.2.4, Public Involvement Process, and Volume II, Appendix B, Scoping Comments.

4.6.1 Juan Bautista de Anza National Historic Trail

Meredith M. Kaplan, NPS Superintendent of the Anza NHT, accompanied staff from Statistical Research, Inc. (SRI), the County of Riverside, SBNF, and FHWA on several field trips to the project area to review preliminary alignments and discuss issues of concern to the NPS regarding use of the Anza NHT, along with possible project effects and opportunities for integration of interpretive information and facilities into project design. The NPS was also invited to participate in SEE team meetings and be a cooperating agency under NEPA due to their special expertise in the NHT.

4.6.2 Alessandro Trail

The FHWA and the County of Riverside have worked closely with the SBNF throughout this environmental process and the design phases to assure that protection and enhancement of the Section 4(f) resources are carefully considered. The SBNF prepared a conceptual design for the new parking area for the Alessandro Trailhead.

4.6.3 Archaeological Resources and TCP Resources

On 16 April 2001, a meeting with local Native American tribes was held (Table 1.2-2). In response to the consultation, concerns were raised from several tribes and traditional practitioners about the potential effects of the project on areas used for collecting basketry materials, medicinal plants, and other botanical resources. A field meeting attended by 11 Native Americans representing four area tribes and the Southern California Indian Basketweavers Organization was held on 9 March 2002 to review the proposed project alignment and visit archaeological sites and plant-collection areas. On the basis of concerns expressed during the field review, the FHWA revised the project alignment to avoid one of the larger plant-collecting areas associated with archaeological site BC-6. In addition, the County of Riverside contracted with Cultural Systems Research, Inc. (CSRI), to prepare an ethnobotanical study to document the level of plant usage and potential effects of the project on botanical resources.

The traditional practitioners who attended the field review were invited to a meeting on 3 August 2002 to review the work plan for archaeological testing and to consider the approach to be used for the ethnobotanical study. Members of Santa Rosa and Cahuilla reservations attended the August meeting, where arrangements were made for archaeological monitoring and field trips regarding ethnobotanical investigations.

Members of the Ramona Reservation Tribal Council were invited to a field review of the project on 16 December 2002. During the review, attended by one council member, archaeological sites and plant-collecting areas were visited. Members of Ramona, Cahuilla, and Santa Rosa reservations have expressed interest in reviewing the draft cultural resources assessment. Copies of the draft cultural report were sent to the local Native American tribes and other practitioners of traditional Native American culture for their review and input. An ethnobotanical field study was conducted on 22 November 2003. In attendance were representatives from the SBNF, SRI, and representatives from the following groups: Pala, Soboba, Ramona Band of Cahuilla Indians, Cahuilla Band of Mission Indians, and Santa Rosa.

Several individuals with knowledge about the cultural resources of the project area were consulted. These include Daniel F. McCarthy, SBNF Tribal Relations Program Manager and former Acting Heritage Resources Program Manager; Douglas Pumphrey, former District Ranger for the SBNF San Jacinto District, and Meredith Kaplan, Superintendent of the Juan Bautista de Anza National Historic Trail.

Local historians consulted were Ann and Billing Jennings, and Phil Brigandi, all of Hemet. They provided many suggestions for research materials, and Mr. Brigandi reviewed his files of local newspapers for stories related to Bautista Canyon.

Consultations between the FHWA and California SHPO are ongoing, and are expected to result in signing of a MOA regarding any adverse effects of the project on historic properties. The FHWA will continue to consult with the ACHP, and other signatories to implement the terms of the MOA.

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Consultations between the FHWA and California SHPO are ongoing, and are expected to result in signing of a MOA regarding any adverse effects of the project on historic properties. The FHWA will continue to consult with the ACHP, and other signatories to implement the terms of the MOA during design and construction phases of the proposed project.

5.0 CUMULATIVE EFFECTS

A cumulative effects analysis is required under both CEQA and NEPA. Per CEQA Guidelines § 15355, "cumulative effects refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental effects." NEPA 40 CFR § 1508.7 defines cumulative effect as "…the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." Reasonably foreseeable projects are projects under construction and those related, unapproved projects, currently under environmental review. Cumulative impacts from the proposed Bautista Canyon Road project are determined by examining the impacts to resources resulting from the proposed project in combination with the effects of other past, present and reasonably foreseeable actions.

It is possible for a project to have only minor or incremental effects, yet when its effects are considered with effects from closely related past, present, and reasonably foreseeable future projects, the overall cumulative effects may be environmentally significant. The discussion of cumulative effects reflects the anticipated severity of effects and their likelihood of occurrence, but the discussion need not be provided in as much detail as other issue analyses. As with alternatives, the analysis of cumulative effects is guided by practicality and reasonableness (CEQA Guidelines, § 15130[b]).

5.1 Cumulative Projects

A search for past, present, and reasonably foreseeable future projects was made using the State Clearinghouse (SCH) CEQAnet database, and discussions with the County of Riverside. The CEQAnet is a searchable database of all environmental documents that SCH has received from public agencies since 1990. This database allows the public to view brief descriptions of these documents, and allows public agencies to electronically submit environmental notices to the SCH (SCH 2003). Reasonably foreseeable projects are those that are approved and under construction, approved related projects not yet under construction, and also unapproved projects currently under environmental review with related impacts or which result in significant cumulative impacts (CEQA Guidelines, § 15130). A lead agency may limit its analysis of probable future projects to those that are planned or which have had an application made at the time the NOP is released for review. Eight planned or proposed projects have been identified within the vicinity of the Bautista Canyon Road Project (see Table 5.5-1). Of those, five are specific plan/master plan residential development projects. The effects from these projects are summarized in the Status column of Table 5.5-1. Environmental documents for the Mesa Grande Specific Plan (project #5), the Vail Lake Specific Plan (project #6), and the Red Mountain Specific Plan (project #7) were not available for public review; therefore, cumulative effects discussions are based on reasonably foreseeable consequences associated with proposed development.

The Santa Rosa and San Jacinto Mountains National Monument Draft Resource Management Plan is included because of its proximity (Idyllwild) to the proposed project area. The project is a comprehensive plan establishing strategies for managing biological, cultural, recreational, geological, educational, scientific, and scenic values. The EIS applies to BLM and SBNF land within the boundary of the National Monument. Growth of the residential population and growth in the tourism industry have increased the awareness of and need for outdoor recreation opportunities and open space within the National Monument and nearby areas; however, effects to National Monument resources from current levels of use are unknown and would need to be managed to minimize impacts to biological resources. No significant cumulative effects were identified as a result of the implementation of the proposed Monument Plan. Implementation of the plan would result in a benefit to biological resources with the National Monument when considered in conjunction with other comprehensive plans such as the Western Riverside County MSHCP.

The Western Riverside County MSHCP is a comprehensive plan that seeks to conserve up to 247 species with a reserve system of approximately 500,000 acres within 1.26 million acres of western Riverside County. Cumulative effects found to be significant include direct cumulative impacts to noncovered species and the introduction of land use within areas adjacent to the Conservation Area; indirect "edge effects" (noise, lighting, etc.) to biological resources; and indirect cumulative effects to housing, population, and employment in areas adjacent to the reserves.

The County of Riverside General Plan is an attempt to promote a more focused and balanced pattern of growth that accommodates the demand for housing, employment opportunities, and public facilities and services while minimizing the effects of increasing urban development. As noted, the proposed action is located within the REMAP, which is one of 19 area plans of the General Plan. The Draft EIR has been completed and cumulative effects of development under the General Plan were identified based on population growth within Riverside County and the surrounding SCAG region. The Draft EIR did not evaluate site-specific effects of future individual projects because it was difficult to predict timing and density of future projects, and these projects would be subject to separate environmental studies. Cumulative effects found to be significant as a result of the proposed General Plan include: agricultural resources, population and housing, visual resources, air quality, biological resources, cultural resources, energy, storm water runoff and flooding, geologic hazards, parks and recreation, public services and facilities, transportation and circulation, and water resources (County of Riverside 2002c).

For purposes of this discussion, a list of proposed projects with a summary description is provided in Table 5.1-1. The general location of each project is shown in Figure 5.1-1. The cumulative projects listed in Table 5.1-1 were considered in the impact analyses for each environmental issue (Sections 3-1 through 3-13). Refer to the respective sections for issue-specific cumulative effects, and Section 5.2 for a summary of adverse cumulative effects.

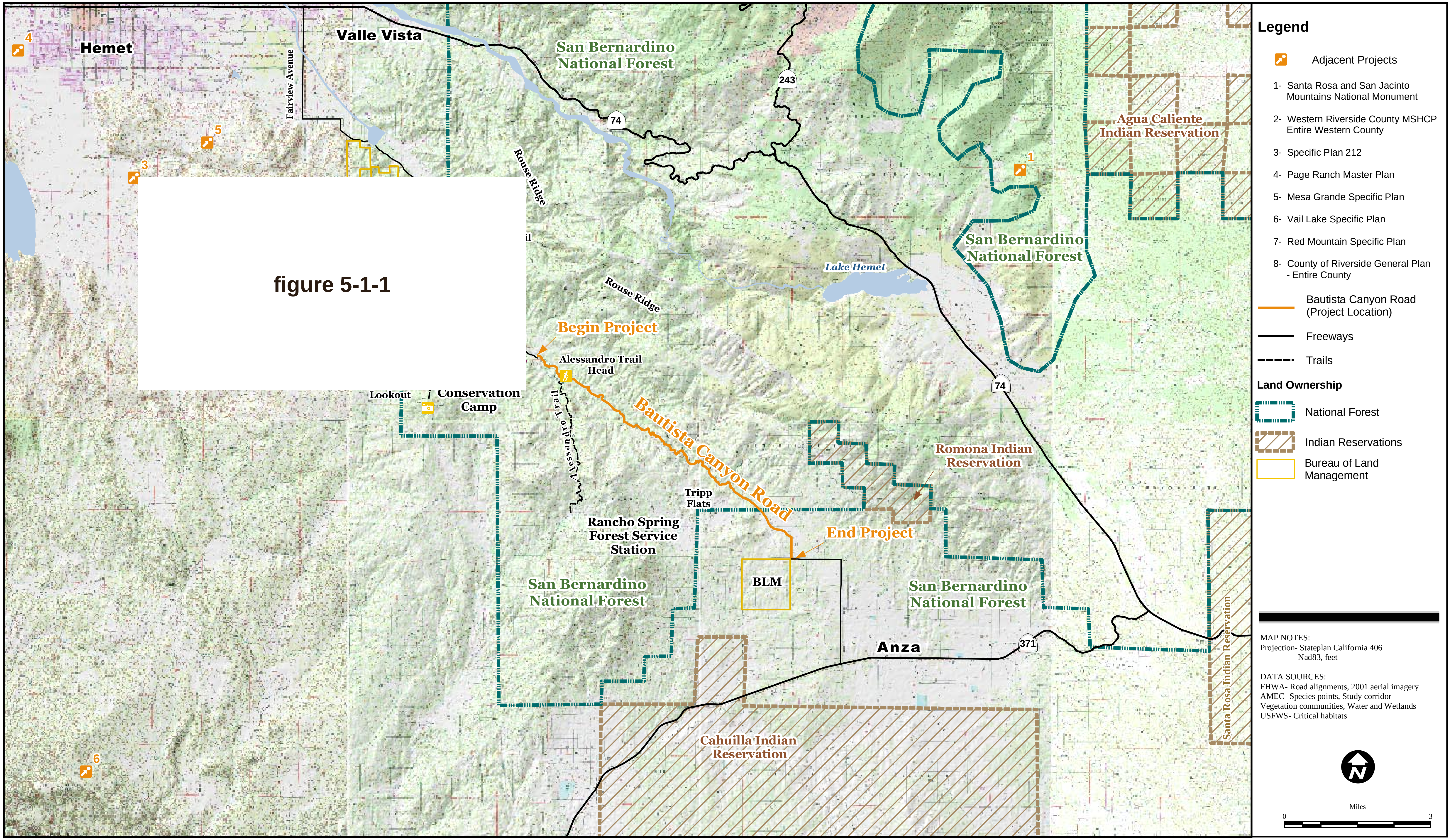
Table 5.1-1
Cumulative Projects List

Project Name	Summary Description	Status/Effects
1. Santa Rosa and San Jacinto Mountains National Monument Draft Resource Management Plan	The congressional legislation creating the Santa Rosa and San Jacinto Mountains National Monument required the completion of a Management Plan. This Draft Plan/Draft EIS applies to BLM and Forest Service land within the boundary of the National Monument. Strategies for managing the biological, cultural, recreational, geological, educational, scientific, and scenic values are provided.	An Environmental Impact Statement has been prepared by the BLM. The 90-day public review period ended in June 2003. Project issues include archaeological-historical resources, geologic/seismic, recreation/parks, vegetation, water quality, wetland/riparian resources, wildlife, and, land use. No cumulative effects were identified.
2. Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP)	The County's proposed MSHCP will be a comprehensive plan that seeks to conserve up to 247 species within a reserve system of approximately 500,000 acres within 1.26 million acres of western Riverside County pursuant to state and federal endangered species laws. The MSHCP establishes a reserve system, with a focus on conserving species associated with development. Development may include residential, commercial, industrial, and recreational development; public infrastructure; and maintenance of public facilities. This plan would allow the County and other participating jurisdictions to retain local control over land use decisions, provide for critical public infrastructure projects, and sustain economic growth.	The County of Riverside has prepared an EIR/EIS and the public review period ended in December 2002. The County Board of Supervisors adopted the EIR/EIS in June 2003. Significant cumulative effects include direct and indirect impacts to biological resources; and indirect cumulative impacts to housing, population, and employment.
3. Specific Plan 212, Amendment No. 1, Change of Zone No. 6526, Tentative Tract Map No. 30037	Specific Plan No. 212, Amendment No. 1 will provide for a residential community of 499 single-family dwelling units, with open space and recreational amenities on approximately 390.5 acres. At build out, the project will contain a mix of residential lot sizes, 6.6-acre park, and multiuse trails, while preserving 23.7% of the project site as natural open space. The proposed project includes approximately 92.6 acres of natural open space to protect important topographical features and biological resources. Additionally, the proposed project includes 6.6 acres of active parks and multiuse trails along project roadways, which will provide opportunities for active and passive recreation. The project trails provide an internal pedestrian circulation system and act as an important link between Simpson Park to the east and the County recreational trail system to the west. The park and trail system will be available for use by residents of Mesa Grande and by surrounding, off-site residents and visitors. Residential lot sizes range from 10,000 square foot minimum to 1-acre estate lots. Dwelling unit densities range from 0.11 du/ac to 3.3 du/ac, with an overall average project density of 1.27 du/ac. The land use plan identifies the location of the various uses, including residential densities, vehicular circulation patterns, recreational uses, and open space portions of the project. Change of Zone No. 6526 proposes a text change to the specific plan zoning ordinance in order to reflect the proposed Specific Plan Amendment. Tentative Tract Map No. 30037 is a schedule "A" map that proposes to subdivide 390 acres into 499 dwelling units with 10,000-square-foot minimum lot sizes.	The City of Hemet has prepared an EIR and the public review period ended in March 2003. Project on hold by applicant. Project issues include agricultural land, air quality, aesthetic/visual, archaeological-historical resources, drainage/absorption, flood plain/flooding, forest land/fire hazard, geologic/seismic, mineral resources, noise, population/housing balance, public services, recreation/parks, schools/universities, sewer capacity, soil erosion/compaction/grading, traffic/circulation, vegetation, water quality, water supply, wetland/riparian resources, wildlife, growth inducing, land use.

du/ac – dwelling units per acre

Table 5.1-1 (continued)
Cumulative Projects List

Project Name	Summary Description	Status/Effects
4. Page Ranch Master Plan Amendment (SPA 02-2), Vesting TTM 30041 & General Plan Amendment (GPA 02-3)	Subdivision of 102.8 acres into 428 single-family detached lots with three entrances onto Sanderson Avenue, and development of four lakes and several pocket parks throughout the site.	The City of Hemet filed a Negative Declaration in February 2003 for the project. Project issues included air quality, archaeological-historical resources, noise, soil erosion/compaction/grading, traffic/circulation, wetland/riparian resources, and wildlife. No cumulative effects were identified.
5. Mesa Grande Specific Plan	The project consists of an amendment to Specific Plan No. 212 to develop 390.5 acres to include 274 acres of residential uses with a maximum of 499 dwelling units, 6.6 acres of parks, 92.6 acres of open space, and 17.1 acres of primary roads. A related application, Change of Zone No. 6526, proposes to change the zoning within Specific Plan No. 212, Amendment No. 1 from Controlled Development Areas (W-2) to Specific Plan.	A Notice of Preparation was filed with the State Clearinghouse on 8 May 2001. An EIR is currently being prepared for this project but is still in the screencheck draft phase. Information regarding environmental effects was not available at present.
6. Vail Lake Specific Plan	The Vail Lake Specific Plan area represents one of the last large land holdings in western Riverside County and provides the project proponent with the opportunity to create a unique community, one that preserves thousands of acres of open space while providing residential, recreational, and employment opportunities within a truly integrated development concept. This Specific Plan No. 324 is a proposal consisting of 7,456 total acres. It will include 5,172 dwelling units of various densities. Employment/Commercial uses will use 350.5 acres. Commercial/Recreation uses will use 78.7 acres. Schools will use 95.5 acres, and parks will make up 48 acres. Three 18-hole golf courses will use 783.9 acres. Public facilities will use 209.3 acres and there will be a total of 4,557.4 acres of open space. The site also surrounds and proposes uses for 622.5-acre Vail Lake, which is owned by the Rancho California Water District.	A Notice of Preparation was filed with the State Clearinghouse on 18 December 2000. However, an EIR has not yet been submitted for the project.
7. Red Mountain Specific Plan	A specific plan to develop a maximum of 49 dwelling units on 194.59 acres was approved on 19 December 1976 (Resolution 76-250).	Environmental effects and conclusions unknown.
8. County of Riverside General Plan	The proposed General Plan is an attempt to promote a more focused and balanced pattern of growth that accommodates the demand for housing, employment opportunities, and public facilities and services while minimizing the effects of increasing urban development. The proposed land uses include four basic components: rural, agriculture, open space, and community development. Land uses are further divided into 19 Area Plans, March Air Reserve Base, and those areas within the County territory not part of an Area Plan. In addition to the proposed General Plan, the proposed project includes an amendment of Riverside County Land Use Ordinance No. 348. The amending of this ordinance will revise the map of County Zoning District boundaries to correspond with the boundaries of the proposed Area Plans. The new Zoning District map will supersede the boundaries of existing Zoning Districts within Riverside County. The County's action will be limited to the reorganization of Zoning District boundaries and will not change the zoning for any parcel as it currently exists.	A Draft EIR has been completed and is currently under public review. Significant cumulative effects include agricultural resources, population and housing, visual resources, air quality, biological resources, cultural resources, energy, storm water runoff and flooding, geologic hazards, parks and recreation, public services and facilities, transportation and circulation, and water resources.



Cumulative Projects

FIGURE

5.1-1

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5.2 Cumulative Effects Analysis

5.2.1 Land Use

As noted in Section 3.1, the proposed project is not anticipated to adversely effect land use. While there is speculation that growth in proximity to the Bautista Canyon Road corridor may occur as the population of Riverside County increases, it would occur consistent with the County of Riverside General Plan and other applicable local, state and federal (i.e., USDAFS) planning documents.

As noted in Table 5.1-1, there are several land development projects proposed in relative proximity to the Bautista Canyon Road corridor. All have completed NEPA/CEQA review or are in the environmental review process. None would require use of Bautista Canyon Road for access and based on their location, the corridor would not be used as a primary and/or direct route to/from urbanized areas of Riverside County. Thus, based on the location of proposed and ongoing development, land use along the Bautista Canyon Road corridor and plans and policies currently in place, there are no anticipated cumulative land use effects associated with project implementation. No mitigation measures would be required.

5.2.2 Socioeconomics/Environmental Justice

As discussed in Section 3.2 of this document, the proposed project and/or alternatives is not anticipated to have socioeconomic or environmental justice effects. As noted in Table 5.1-1, population and employment (i.e., socioeconomic) impacts are associated with Western Riverside County MSHCP and County of Riverside General Plan. These impacts are associated with land development controls and use restrictions and potential effects to the population and housing balance. The development projects identified above are not anticipated to have adverse socioeconomic or environmental justice effects. Because implementation of the proposed project would cause no housing displacement, adversely effect established communities, or otherwise have socioeconomic or environmental justice effects, no cumulative impacts are anticipated. No mitigation measures would be required.

5.2.3 Traffic/Transportation

As noted in Section 3.3, traffic volumes on Bautista Canyon Road are anticipated to increase after project implementation. Volumes would increase as a result of general population growth in unincorporated Riverside County and through the diversion of existing traffic currently using other roadways in the area. As discussed in Section 5.1.1, development identified in Table 5.1-1 and general population growth within the county will contribute to higher volumes. Bautista Canyon Road is not anticipated to become a direct or primary route between anticipated development and the urbanized portions of Riverside County. The proposed project would complete a system link, increase safety and efficiency for road users and improve access to a portion of the SBNF. There are no known land use development plans tied to project completion. Thus, the proposed project is not anticipated to cause or have a cumulative adverse effect on traffic/transportation resources. No mitigation measures would be required.

5.2.4 Air Quality

No significant air quality impacts were identified for the proposed project and air quality issues associated with projects proposed in Table 5.1-1 are related to land clearing/construction and increased traffic. As noted in Section 3.4, construction of the proposed project would generate temporary air emissions. No effects are anticipated during operation. All development projects and related traffic would contribute to air emissions within the region and all regional transportation improvements associated with these projects are required to be included in a conforming RTIP as part of the approval process. As noted in Section 3.3, the proposed project has been included in a conforming RTIP. Thus, because all development projects, including the proposed project, are subject to the same SCAQMD regulatory controls to reduce construction emissions and SCAG RTIP review requirements, no cumulative air quality impacts associated with the proposed project are anticipated. No mitigation measures would be required.

5.2.5 Noise

As noted in Section 3.5, traffic associated with implementation of the proposed project would cause a 12 or greater decibel increase at one residential location near the southern project terminus; and thus, would exceed the FHWA noise abatement criteria as defined in Table 3.5-3. Noise associated with the development projects defined in Table 5.1-1 would also be traffic related. However, given that projects are located some distance from Bautista Canyon Road and, as noted in Section 5.2.3, would not directly contribute to traffic volumes, there would be no cumulative noise effects associated with project implementation. No mitigation measures would be required.

5.2.6 Biological Resources/Wetlands

Construction and operation of the proposed project would contribute to the continued loss and degradation of habitat and biological resource effects relative to ongoing development in Riverside County. As noted in Section 3.6, the project area is located within the San Jacinto Mountains Bioregion of the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP) area. The purpose of the plan is to maintain biological diversity within a rapidly urbanizing region by providing tools to better control land use decisions while maintaining a strong economic climate and addressing requirements of both the state and federal Endangered Species Acts. Projects within western Riverside County, including those listed in Table 5.1-1, are and would be subject to review per the MSHCP to avoid and/or minimize adverse biological resource effects.

Approximately 85 percent of the study corridor is publicly owned land. The majority of this land and the surrounding area is part of the SBNF. The SBNF Land and Resource Management Plan, discussed in Section 3.6.1, provides guidelines for the management of biological resources to avoid and minimize cumulative effects. This project has been developed consistent with that plan. With regard to the CDC Bautista Conservation Camp, no project or activities are being planned that would foreseeably affect biological resources in that area.

Approximately 15 percent of the study corridor is on private land, which comprises approximately 1.9 km (1.2 mi) of the southern terminus of the study corridor. These privately owned lands are single-family, rural, large-lot parcels. No significant development or activities on these private lands are anticipated that would foreseeably affect biological resources in the area. Additionally, the MSHCP has been developed in western Riverside County to mitigate cumulative effects to biological resources in the region. The Bautista Canyon Road project has been developed consistent with the guidelines of the MSHCP.

The cumulative effects of the proposed project under Alternative B and C are the same as those from the project under Alternative A. See Section 3.6.4 for a discussion of these effects. No mitigation measures beyond those defined in Section 3.6 would be required.

5.2.7 Hydrology/Water Resources

As discussed in Section 3.7, mitigation measures have been identified to avoid/minimize water resource impacts associated with the proposed project. It is anticipated that effects would be less than those that currently occur during storm events in the area. Development projects defined in Table 5.1-1 are subject to similar water resource protection standards. Drainage buffers, culverts, crossings and storm water and runoff management controls must be designed into the project and be reviewed as part of the overall environmental review and approval process. Thus, no cumulative hydrologic effects are anticipated with the Bautista Canyon Road project. No mitigation measures in addition to those provided in Section 3.7 are required.

5.2.8 Cultural Resources

As required by CEQA and NEPA, cultural resources reviews are conducted for all development projects. As noted in Section 3.8, the Bautista Canyon project area contains a number of significant archeological sites. The project design has been modified to incorporate avoidance measures designed to minimize effects to these resources; however, some degree of impact would still occur. As noted in Table 5.1-1, effects to cultural/historic resources are associated with all the projects identified. Cumulatively, the projects could contribute to the degradation and/or direct loss of these resources or their cultural significance. Mitigation measures designed during consultation with Native American tribes, SHPO, traditional practitioners and others affected, would minimize losses and preserve, at least in part, their cultural/ archaeological significance.

5.2.9 Hazardous Materials

No hazardous material impacts were identified for the proposed project and none are a noted concern in Table 5.1-1. Thus, no cumulative effects are identified. No mitigation would be required.

5.2.10 Visual Resources

All development projects have some degree of residual visual impact. While mitigation measures have been identified to reduce the level of visual impact associated with the proposed project, visual effects are anticipated to be significant and unmitigable in portions of the corridor. As required, development projects included in Table 5.1-1 would be reviewed for consistency with applicable building and architectural codes. It is assumed that visual impact characteristics would be similar in scope to like projects. However, because a long-term effect of any development project is visual, cumulatively, the proposed project and the development projects listed in Table 5.1-1 would contribute to visual alternation of the respective sites and neighboring viewsheds.

5.2.11 Recreation

No adverse recreation effects were identified in Section 3.11. While continued growth in recreational use of the SBNF is anticipated, this growth can be attributed to increases in population and higher use of the Bautista Canyon Road corridor in general. As noted in Table 5.1-1, many of the development projects listed incorporate a recreation component. Though they likely would not incorporate OHV use or other activities offered in the SBNF. Regardless, development of other projects in the area cannot be linked to increased recreational use in Bautista Canyon. Thus, no cumulative effects are anticipated.

5.2.12 Soils/Geology

Implementation of projects with earthwork and structural components require site-specific geotechnical analyses to identify potential soil, seismic and related characteristics that require design consideration. As noted in Section 3.12, the proposed project would be designed to meet local, state and other applicable building codes to minimize/avoid effects related to subsurface features. Similar requirements would apply to those developments listed in Table 5.1-1. Because project designs would be required to incorporate proper seismic and related structural components, no direct or cumulative geology/soil effects are anticipated.

5.2.13 Public Services/Utilities

As discussed in Section 3.13, implementation of the proposed project would improve emergency vehicle and law enforcement access into Bautista Canyon. Seven electrical utility poles and a fiber optics cable would be relocated as a result of project construction. Service would temporarily be rerouted and no user disruptions would occur. No adverse effects to public services and/or utilities are anticipated. As noted in Table 5.1-1, public services/utilities are not listed as a cumulative effect concern. Because the proposed project would have no adverse effects to public services/utilities, no cumulative effects to these resources are anticipated. No mitigation is recommended.

5.2.14 Fire Hazard and Risk

As discussed in Section 3.14, fire hazards and risks associated with the proposed project are not anticipated to significantly increase over what currently exists. The proposed corridor, including paved travel lanes and unpaved shoulders, would serve as a firebreak. USDAFS fire suppression programs would further reduce risk. However, as noted, upon project completion, it is expected that public use within Bautista Canyon would increase as described in Section 3.3. Thus, fire risk could increase as a result of greater human presence within the canyon. As human habitation of rural areas increases, the potential for accidental starts and/or property damage from wildfires will grow. Fire fuel control requirements associated with residential developments are intended to reduce risks and potential damage to property from wildfires or other hazards. New development such as those proposed in Table 5.1-1, would be subject to fuel load management requirements. Thus, while increased human presence and related development could increase fire risk, fire suppression and other measures designed to minimize risks would minimize potential cumulative effects.

6.0 GROWTH INDUCEMENT

Section 15126.2(d) of the CEQA Guidelines requires an EIR to discuss ways in which a proposed project could facilitate economic or population growth or the construction of additional housing (either directly or indirectly) in the surrounding environment. Growth inducement analysis is not specifically required under NEPA. This discussion focuses on the potential for a project to remove obstacles to population growth. To illustrate this point, the CEQA Guidelines offer, as an example, the major expansion of a wastewater treatment plant that may allow for more construction in the service area. Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. In addition, the growth-inducement discussion should assess how a project may facilitate other activities that could significantly affect the environment, either individually or cumulatively. The Guidelines further state that it should not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment. The following discussion considers ways the proposed project could induce economic or population growth, either directly or indirectly.

The proposed action includes the reconstruction of a 13.2 km (8.2 mi) segment of Bautista Canyon Road and construction of a bridge crossing over Bautista Creek (see Section 2.2.4.1), a Bautista Canyon Overlook area (see Section 2.2.4.2), and the OHV Alessandro Trailhead parking area (see Section 2.2.4.3). The project site is located within the SBNF and unincorporated Riverside County. As noted, the project area is designated as open space and a conservation area in the County of Riverside General Plan REMAP.

The proposed action would improve roadway safety and access to Bautista Canyon. However, because land adjacent to the corridor is federal public land set aside for open space and recreational use, growth inducement or development of the land in the study area is not anticipated. There are some vacant properties at the northern and southern termini of Bautista Canyon Road within the communities of Valle Vista and Anza, respectively. The proposed project may make these properties more desirable for development; however, no construction is occurring and there are no known proposals currently under ongoing environmental review. The proposed action would not involve development or expansion of infrastructure, public services, or utilities. Existing power lines and fiber-optic cable lines would be relocated during construction. No additional service capacity is planned. Further, the need for public services/utilities such as schools, libraries, water, sewer, gas, police, and fire services would not be generated by the proposed action. Thus, no growth inducing effects are anticipated; however, any future growth occurring within unincorporated Riverside County would be subject to REMAP, the General Plan, and related development restrictions.

7.0 EFFECTS NOT FOUND TO BE SIGNIFICANT

Pursuant to § 15128 of the CEQA Guidelines, an EIR must contain a statement briefly indicating the reasons used to justify why various possible significant effects of a project were determined not to be significant and were, therefore, not discussed in detail in the EIR. A discussion of effects not found to be significant is not specifically required under NEPA. The following issue areas were determined not to have the potential to cause adverse effects and therefore have not been addressed in detail in the EIR.

7.1 Agricultural Resources

There are no lands designated as prime agricultural soils by the Natural Resource Conservation Service, within the study area. Further, the study area does not contain prime farmlands designated by the California Department of Conservation. The site is not subject to, nor is it near, a Williamson Act contract site pursuant to § 51200-51207 of the California Government Code. Therefore, impacts to agricultural resources would not occur.

7.2 Energy and Mineral Resources

The proposed action would not result in a substantial use of energy or the loss of a locally or regionally significant mineral resource. The project would divert some traffic from other roadways but would not add new vehicles to the system. Soils within Bautista Canyon are of granitic origin. Mineral resources in the area consist primarily of gemstone mines and other small mines. No mines in the SBNF are currently producing critical minerals. Future mining in Bautista Canyon is considered unlikely, since no limestone, sand, or gravel sources are found in this area. Therefore, effects to mineral resources are not considered significant.

Fossil fuels would be used during construction. Such use of energy sources would be temporary. Most vehicles using the improved roadway would be utilizing fossil fuels. However, the improvements in traffic conditions due to the proposed action would allow for more efficient utilization of fossil fuels. Further, the project would divert traffic from other roads and not add new vehicles to the circulation system. As such, the proposed action would not require the development of new sources of energy.

7.3 Population and Housing

The proposed action proposes no residential development and no displacement would occur. Thus, the proposed action would not significantly alter the planned location, distribution, or growth of the human population in the area, nor would it create a demand for additional housing.

8.0 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

This chapter discusses significant irreversible and irretrievable commitment of resources that would result from the proposed action, should it be implemented, as required under NEPA 40 CFR § 1502.16 and CEQA Guidelines, § 15126.2(c). Irreversible and irretrievable commitments of resources are evaluated to ensure that their current use is justified. Three categories are considered: primary effects, such as the use of nonrenewable resources; secondary effects, such as highway improvements that provide access to previously inaccessible areas; and environmental accidents associated with a project. Primary and secondary effects are described in each resource category, as necessary.

Nonrenewable Resources

Implementation of the proposed project would involve the use of energy resources and building materials. This would represent the loss of both renewable (certain construction materials) and nonrenewable resources. Human labor is also considered an irretrievable resource used during construction. Certain resources such as energy in the form of electricity, energy derived from fossil fuels, capital, construction material (including cement, sand and gravel, water, etc.), and labor would be irreversibly committed. This commitment of energy, natural resources, and building materials would be commensurate with that of other roadway projects of similar size.

Energy resources would be required to construct the project in the short term. The primary energy source would be fossil fuels, representing an irreversible commitment of this resource. Effects associated with the consumption of energy resources would not be considered significant.

As previously discussed in Chapter 7.0 and Section 3.7, development of the project would not result in the direct loss of mineral resources or require the use or expansion of water resources.

Secondary Effects

The proposed project would not cause secondary effects, such as highway improvements that provide access to previously inaccessible areas. No additional access to the SBNF is planned. Project improvements would facilitate more efficient travel through the canyon.

Environmental Accidents

Based on the proposed uses, no major environmental accidents or hazards[25] are anticipated to occur as a result of project implementation. Further, Bautista Canyon Road would not become a designated haul route for hazardous materials or chemicals. Signage would be posted near the logical termini to deter commercial and other large trucks from using the road.

[25] An unexpected occurrence, failure or loss with the potential for harming human life, property or the environment caused by the leakage or spillage of toxic/hazardous materials or substance (EPA).

9.0 UNAVOIDABLE SIGNIFICANT ADVERSE ENVIRONMENTAL EFFECTS

This chapter discusses significant environmental effects that cannot be avoided if the project is implemented, including those that can be mitigated but not reduced to a level of insignificance, as required under NEPA 40 CFR § 1502.16 and CEQA Guidelines § 15126.2(b).

Alternatives A, B, and C

<u>Noise</u>

Noise levels are anticipated to exceed the abatement criteria in the southern portion of the study area. The southern segment of Bautista Canyon is currently the least traveled portion of the study area and, as noted, the impact is a result of increased sound energy from additional vehicle pass-by events during the peak travel hour. While noise levels would not exceed the 67 dBA impact threshold, they are predicted to increase by more than 12 dBA. As discussed in Section 3.5.5, noise barriers are most effective in urban areas where development densities make them feasible from an engineering and cost perspective. The cost at an estimated $60 per square foot would be close to $600,000. For a single property, this is not a reasonable expenditure to obtain a small noise reduction for a noise level already 20 dBA below the noise abatement criteria. Thus, noise abatement would be considered unreasonable and, therefore, is not recommended for further study. Noise impacts in the southern portion of the study area would remain adverse and unmitigable.

<u>Visual Resources</u>

As discussed in Section 3.10, project implementation could have an adverse effect on a scenic vista and could substantially degrade the existing visual character and quality of the site and its surroundings. The proposed road would be a dominant human-made feature that would change the scale of the landscape experience, primarily when viewed from a driver's perspective, because the proposed action would realign the roadway from its canyon floor location. As noted in Section 3.10, measures implemented as part of project design and as mitigation would reduce visual impacts relative to the thresholds of significance defined in Section 3.10.3, and would ensure the project complies with the VQO visual management standards defined by SBNF for the project area.

<u>Fire Hazard and Risk</u>

Implementation of the proposed action could increase the potential for exposure to the risk of loss, injury, or death involving wildland fires because of the higher traffic and overall use of the canyon. The exposure of people to the risk of loss, injury, or death involving wildland fires for the project area would remain a significant and unmitigated effect. However, the proposed project would improve access to the SBNF for emergency vehicles, including fire equipment, which would offset, in part, increased wild fire risk or public exposure to other hazards.

10.0 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

NEPA requires a discussion of "the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity" (40 CFR 1502.16). For example, the Draft EIS for a proposed action to convert agricultural land to urban uses would include a discussion of the loss of long-term crop production. Effects of short-term uses that narrow the range of long-term beneficial uses of the environment are of particular concern. An analysis of the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity is not specifically required under CEQA.

Realignment and construction of the 13.2 km (8.2 mi) segment of Bautista Canyon Road would entail short-term and limited use of the local environment to reconstruct this segment of dirt roadway. Such activities would not preclude the long-term continuance of existing natural resources within the project site. As a result, it is not anticipated that the proposed action would result in any environmental effects that would permanently narrow the range of beneficial uses of the environment or pose long-term risks to health, safety, or the general welfare of the public.

The proposed action is consistent with the long-term planning goals of the County of Riverside General Plan's REMAP. Implementation of the Bautista Canyon Road Project would accommodate existing and projected traffic volumes in the study area. This would alleviate access problems for emergency vehicles and provide better and faster linkage between the communities of Valle Vista and Anza. Implementation of the project would reduce long-term maintenance needs, dust emissions and soil erosion resulting from the unpaved segment.

11.0 ENERGY REQUIREMENTS AND CONSERVATION POTENTIAL OF THE VARIOUS ALTERNATIVES

NEPA requires an analysis of the relationship between a project's short-term impacts on the environment, and the effects that these impacts may have on the maintenance and enhancement of the long-term productivity of the affected environment. A discussion of the energy requirements and conservation potential of the various alternatives is not a specific requirement under CEQA.

Implementation of the proposed alternatives would entail the short-term use of energy resources. Consumption of certain resources such as energy in the form of electricity, and energy derived from fossil fuels would be required for construction of the build alternatives, and would be similar for Alternatives A, B, and C. This energy requirement would be commensurate with that of other roadway projects of similar size.

After construction, operational energy requirements of Bautista Canyon Road would be less with implementation of Alternative A, B, or C than with the No Action alternative, Alternative D. Improving the 13.2 km (8.2 mi) segment of Bautista Canyon Road would result in a smoother, safer, and faster roadway surface, thereby reducing energy requirements in the long-term for vehicles using the roadway, when compared to the unimproved road. Energy requirements for maintenance of the improved roadway would be substantially less than for Alternative D (No Action), which would continue to require periodic re-grading of the 13.2 km (8.2 mi) dirt segment.

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14.0 GLOSSARY

Acre-foot. A measure of water or sediment volume equal to the amount that would cover an area of 1 acre to a depth of 1 foot (325,851 gallons).

Affected Environment. The biological, physical, social, and economic environment subject to changes that may take place as a result of proposed human activity.

Agricultural Land. "Agricultural land" means prime farmland, farmland of statewide importance, or unique farmland, as defined by the United States Department of Agriculture land inventory and monitoring criteria, as modified for California. (b) In those areas of the state where lands have not been surveyed for the classifications specified in subdivision (a), "agricultural land" means land that meets the requirements of "prime agricultural land" as defined in paragraph (1), (2), (3), or (4) of subdivision (c) of Section 51201 of the Government Code.

Alternative. One of several policies, plans, or projects proposed for decision making.

Ambient. Surrounding on all sides; used to describe measurements of existing conditions with respect to traffic, noise, air, and other environments.

Ambient Air. The air occurring at a particular time and place outside of structures. Often used interchangeably with “outdoor” air.

Aquifer. An underground, water-bearing layer of earth, porous rock, sand, gravel, or other geological formation, or group of formations, through which water can seep or be held in natural storage. Aquifers are sources of groundwater for wells and springs, and generally hold sufficient water to be used as a water supply.

Archaeological Site. An archaeological site is defined as a site that must consist of at least three associated artifacts or a single feature; and be at least 45 year of age. The age of the site may be determined by artifactual evidence, documentary evidence, or similarity of the site to others which have firm dating (*California Archaeological Inventory Handbook for Completing an Archaeological Site Record* [OHP 1989b]).

Area of Potential Effects. Area of potential effects means the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking (Section 106, 36 CFR Part 800).

Attainment. Compliance with state and federal ambient air quality standards within an air basin. (See “Nonattainment”)

Attainment Area. A geographic area that is in compliance with the National and/or California Ambient Air Quality Standards (NAAQS or CAAQS).

Average Daily Traffic (ADT). The average 24-hour volume, being total volume during a stated period divided by the number of days in that period. Unless otherwise stated, the period is 1 year. (FSM 7721.05b, FSH 7709.11, FSH 7709.15, and AASHTO Highway Definitions)

Best Management Practices (BMPs). Those methods, measures, or practices that include, but are not limited to, structural and nonstructural controls and operation and maintenance procedures.

Buildout/Build-Out. Development of land to its full potential or theoretical capacity as permitted under current or proposed planning or zoning designations.

California Ambient Air Quality Standards (CAAQS). Standards set by the State of California for the maximum levels of air pollutants that can exist in the outdoor air without unacceptable effects on human health or the public welfare. These are more stringent than NAAQS.

California Environmental Quality Act (CEQA). A California law that sets forth a process for public agencies to make informed decisions on discretionary project approvals. The process aids decision makers to determine whether any environmental effects are associated with a proposed project. It requires environmental effects associated with a proposed project to be identified, disclosed, and mitigated to the maximum extent feasible.

CFR. Code of Federal Regulations.

Channel Scour. Removal of loose material by running water from the wetted portion of a stream channel.

Collector Road. Serves smaller land areas than an arterial road and is usually connected to an arterial road or public highway. Collects traffic from local roads and/or terminal facilities. The location and standard are influenced by long-term multiresource service needs, as well as by travel efficiency. May be operated for either constant or intermittent service, depending on land use and resource management objectives for the area served by the facility. (FSM 7710.51)

Corridor. A linear strip of land identified for the present or future location of transportation or utility rights-of-way within its boundaries. (36 CFR 219.3)

Council on Environmental Quality (CEQ). An advisory council to the President established by the National Environmental Policy Act of 1969. It reviews federal programs for their effect on the environment, conducts environmental studies, advises, and provides guidance to the President on environmental matters.

Criteria Pollutants. Criteria air pollutants -- a group of very common air pollutants regulated by EPA on the basis of criteria (information on health and/or environmental effects of pollution). Criteria air pollutants are widely distributed all over the country. EPA has set national air quality standards for six common pollutants: ozone, particulate matter, nitrogen dioxide, sulfur dioxide, carbon dioxide, and lead (EPA).

Critical Habitat. The specific areas within a geographical area occupied by a species at the time it is listed in accordance with the provisions of Section 1533, on which are found those physical or biological features essential to the conservation of the species and which may require special management considerations or protection; and specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination by the Secretary that such areas are essential for the conservation of the species (ESA, Section 1532).

Cumulative Effects. Cumulative effects result from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions, regardless of which agency or person undertakes them (NEPA).

dB. Decibel; a unit used to express the relative intensity of a sound as it is heard by the human ear.

dBA. The “A-weighted” scale for measuring sound in decibels; weighs or reduces the effects of low and high frequencies in order to simulate human hearing. Every increase of 10 dBA doubles the perceived loudness though the noise is actually 10 times more intense.

de minimis. Latin term meaning about the least, smallest, or slightest. A *de minimis* contribution means that the environmental conditions would essentially be the same whether or not the proposed project is implemented. CEQA Guideline § 15139 (a)(4).

Developed Recreation. Recreation use that occurs in constructed facilities (developed sites), such as campgrounds, observation sites, and ski areas.

Dispersed Recreation. Recreation use that occurs outside of developed sites and requires few, if any, improvements other than roads and trails. Representative activities are hiking, backpacking, driving for pleasure, viewing scenery, snowmobiling, cross-country skiing, hunting, off-road vehicle use, etc.

Diversity. The distribution and abundance of different plant and animal communities and species within the area covered by the land and resource management plan.

Easement. Usually the right to use property owned by another for specific purposes or to gain access to another property (County of Riverside 2002a).

Effects. Results expected to be achieved, or actually achieved, relative to physical, biological, and social (cultural and economic) factors resulting from the achievement of outputs. Examples of effects are tons of sediment, pounds of forage, person-years of employment, income, etc. There are direct effects, indirect effects, and cumulative effects.

Endangered Species. Animals, birds, fish, plants, or other living organisms threatened with extinction by anthropogenic (man-caused) or other natural changes in their environment.

Requirements for declaring a species endangered are contained in the Endangered Species Act (EPA).

Environment. CEQA defines environment as "the physical conditions which exist within the area which will be affected by a proposed project, including land, air, water, mineral, flora, fauna, noise, and objects of historic or aesthetic significance."

Environmental Analysis. An analysis of alternative actions and their predictable short- and long-term environmental effects, which include physical, biological, economic, social, and environmental design factors and their interactions.

Environmental Effect. The change, positive or negative, in the physical, biological, economic, or social state directly or indirectly resulting from one or more activities or outputs.

Environmental Impact Report (EIR). A report required pursuant to the California Environmental Quality Act, which assesses all the environmental characteristics of an area, determines what effects or impacts will result if the area is altered or disturbed by a proposed action, and identifies alternatives or other measures to avoid or reduce those effects or impacts (CEQA).

Environmental Impact Statement (EIS). A document required of federal agencies by the National Environmental Policy Act for major projects or legislative proposals significantly affecting the environment. A tool for decision making, it describes the positive and negative effects of the undertaking and cites alternative actions (EPA).

Erosion. The loosening and transportation of rock and soil debris by wind, rain, or running water. Also, the gradual wearing away of the upper layers of earth.

Farmland. See "Agricultural Land."

Fault. A fracture in the earth's crust forming a boundary between rock masses that have shifted.

Flood, 100-Year. The magnitude of a flood expected to occur on the average every 100 years, based on historical data. The 100-year flood has a 1/100, or 1 percent, chance of occurring in any given year.

Floodplain. Land adjacent to a channel, which is covered with water when the stream overflows its bank.

Forest Highway. A forest road under the jurisdiction of and maintained by a public authority and open to public travel. (Title 23 USC 101 as amended by the Surface Transportation Act of 1978)

Forest Road or Trail. A road or trail wholly or partly within, or adjacent to, and serving the National Forest System and that is necessary for the protection, administration, and utilization of the National Forest System and the use and development of its resources. (Title 23 USC 101 as amended by the Surface Transportation Act of 1978)

Fugitive Dust. Dust particles that are introduced into the air through certain activities such as soil cultivation, off-road vehicles, or any vehicles operating on open fields or dirt roadways.

Geologic Hazards. Earth movement including, but not limited to, all forms of mass wasting, seismic hazards (including liquefaction and earthquake induced landslides), avalanches, volcanoes, seiches, and sand dunes.

Ground Shaking. Ground movement resulting from the transmission of seismic waves during an earthquake.

Groundwater. Subsurface water in a saturated zone or geologic stratum.

Habitat. The physical location or type of environment in which an organism or biological population lives or occurs.

Habitats of Special Concern. Habitats with a high level of public or agency concern related to management of the Forest (SBNF Land and Resource Management Plan).

Hazardous Material. Any substance that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. The term includes, but is not limited to, hazardous substances and hazardous wastes.

Historic Property. A historic property is any cultural resource that has been listed or determined eligible for listing in the NRHP, according to the criteria contained in 36 CFR 60.4. The Programmatic Agreement for the Pacific Southwest Region of the Forest Service also defines a historic property as “any property that has not yet been evaluated to determine whether it is eligible for the NRHP.”

Historical Archaeological Resources. Historical archaeological resources include refuse scatters and deposits such as can and bottle dumps, filled-in privy pits and cisterns, melted adobe walls and foundations, collapsed structures and associated features, mines and prospects, logging camps and mill sites, and roads, firebreaks, and trails. These resources may date from the earliest Spanish explorations in the area (A.D. 1772) to the Cold War era (1945). Property types within this category can be considered as sites, districts, or objects.

Historical Buildings and Structures. Historical buildings and structures include intact buildings and structures of any type that are 45 years of age or older. These resources are sometimes referred to as the “built environment” and include houses, barns, and other buildings, and structures such as irrigation works, bridges, and other engineering features. In the study area, buildings and structures are nearly always historical, as prehistoric buildings are unknown for this area, and prehistoric structures are generally recorded as archaeological sites or features.

Historical Resource. A historical resource is any cultural resource that is listed in or determined eligible for listing in the CRHR, included in a local register of historical resources, or determined by the lead agency to be a historical resource, according to the criteria contained in the CEQA Guidelines (CCR § 15064.5(a)).

Important Habitat. Those portions of emphasis species habitat that are critical to sustain population levels and prevent their decline (SBNF Land and Resource Management Plan).

Impervious Surface. Surface through which water cannot penetrate, such as roof, road, sidewalk, and paved parking lot. The amount of impervious surface increases with development and establishes the need for drainage facilities to carry the increased runoff.

Irretrievable. Applies to losses of production, harvest, or use of renewable natural resources. For example, some or all of the timber production from an area is irretrievably lost while an area is being used as a winter sports site. If the use is changed, timber production can be resumed. The production loss is irretrievable, but the action is not irreversible.

Irreversible. Applies primarily to the use of nonrenewable resources, such as minerals or cultural resources, or to those factors that are renewable only over long time spans, such as soil productivity. Irreversible also includes loss of future options.

L_{eq}. The energy equivalent level, defined as the average sound level on the basis of sound energy (or sound pressure squared). The L_{eq} is a "dosage" type measure and is the basis for the descriptors used in current standards, such as the 24-hour Community Noise Equivalent Level (CNEL) used by the State of California.

Level of Service (Traffic). A scale that measures the amount of traffic that a roadway or intersection can accommodate, based on such factors as maneuverability, driver dissatisfaction, and delay.

Liquefaction. The transformation of loose, wet soil from a solid to a liquid state, often as a result of ground shaking during an earthquake.

Management Areas. Areas of land to which specific management activities will be applied, and which permit the scheduling of development or capital investments for resource use. For planning purposes in the San Bernardino National Forest, management areas are defined in three ways: (1) groupings of watersheds that have similar watershed characteristics such as beneficial uses or sediment outputs; (2) wilderness areas; and (3) potential wilderness areas. Where potential wilderness areas cross watershed boundaries, they are split into two parts by the watershed boundary.

Mitigation. Measures taken to reduce adverse effects on the environment (EPA).

Multiple-Use. The management of all the various renewable surface resources of the National Forest System so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in the use to conform to changing needs and conditions; that some lands will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output (36 CFR 219.3)

National Ambient Air Quality Standards (NAAQS). The prescribed level of pollutants in the outside air that cannot be exceeded legally during a specified time in a specified geographical area.

National Environmental Policy Act (NEPA). An Act, to declare a national policy that will encourage productive and enjoyable harmony between man and his environment; to promote efforts that will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the nation; and to establish a Council on Environmental Quality.

National Forest Land and Resource Management Plan. A plan developed to meet the requirements of the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended, that guides all natural resource management activities and establishes management standards and guidelines for the National Forest System lands of a given National Forest.

National Historic Preservation Act (NHPA). A 1966 federal law that established a National Register of Historic Places and the Advisory Council on Historic Preservation, and that authorized grants-in-aid for preserving historic properties (Section 106).

National Recreation Trail. A component of the National Trails System, which is established, as provided in 16 USC 1242, and which will provide a day use or extended trail experience for the enjoyment of a variety of outdoor recreation opportunities reasonable accessible to population centers.

National Register of Historic Places. A list of recognized cultural resource properties that possess national, state, or local significance in American history, architecture, archaeology, or culture.

National Register of Historic Places Criteria. The quality of significance in American history, architecture, archaeology, and culture that exists in districts, sites, buildings, structures, and objects of national, state, and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, and association.

Native Plant Species. Living or growing naturally in a particular region. An original or indigenous inhabitant.

National Scenic Trail (Legal Definition). A component of the National Trails System, which is designated by Congress, as provided in 16 USC 1242, and which is an extended trail so located as to provide for maximum outdoor recreation potential and for the conservation and enjoyment of national significant scenic, historic, natural, or cultural qualities of the areas through which such trails may pass.

No Action Alternative. The most likely condition expected to exist in the future if current condition continued unchanged.

Noise. Any sound that is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying. Noise, simply, is “unwanted sound.”

Noise Attenuation. Reduction of the level of a noise source using a substance, material, or surface, such as earth berms and/or solid concrete walls.

Noise Contour. A line connecting points of equal noise level as measured on the same scale. Noise levels greater than the 60 Ldn contour (measured in dBA) require noise attenuation in residential development.

Nonattainment. The condition of not achieving a desired or required level of performance. Frequently used in reference to air quality. (See “Attainment”)

Nonattainment Area. A geographic area identified by the Environmental Protection Agency and/or Air Resources Board as not meeting either NAAQS or CAAQS standards for a given pollutant.

Nonpoint Source. Originating from many indefinable sources or a diffuse source (water).

OHV. Off-highway vehicle (formerly called off-road vehicles or ORV). Includes most motorized means of transportation capable of traveling over land where no road exists, such as four-wheel drive vehicles, trail bikes, all-terrain vehicles, and snowmobiles.

Ozone. A pungent, colorless, toxic gas. Close to the earth’s surface, it is produced photo chemically from hydrocarbons, oxides of nitrogen, and sunlight and is a major component of smog. At very high altitudes it protects the earth from harmful ultraviolet radiation.

Particulate Matter (PM). Atmospheric particulate made up of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Commonly classified into two categories: PM_{10} (particles between 2.5 and 10 micrometers in length) and $PM_{2.5}$ (particles less than 2.5 micrometers in length).

Particulates. Small particles that are suspended in the air and generally considered pollutants.

pH. An expression of the intensity of the basic or acid condition of a liquid; may range from 0 to 14, where 0 is the most acid and 7 is neutral, and 14 is the most basic. Natural waters usually have a pH between 6.5 and 8.5.

Pollutant. Generally, any substance introduced into the environment that adversely affects the usefulness of a resource or the health of humans, animals, or ecosystems.

Pollution, Nonpoint. Sources for pollution that are less definable and usually cover broad areas of land, such as agricultural land with fertilizers that are carried from the land by runoff, or automobiles.

Pollution, Point. In reference to water quality, a discrete source from which pollution is generated before it enters receiving waters, such as a sewer outfall, a smokestack, or an industrial waste pipe.

Preferred Alternative. The alternative recommended for implementation based on the evaluation completed in the planning process.

Prehistoric and Protohistoric Archaeological Resources. Prehistoric and protohistoric archaeological resources may date from more than 8,500 years ago to the time of European contact and the disruption of aboriginal lifeways (ca. A.D. 1772–1821 in the study area). They may include the remains of villages and camp sites, food-processing locations, lithic resource procurement and tool making locations, burial and cremation areas, trails, rock art, and isolated artifacts. Property types within this category can be sites, districts, or objects. Prehistoric archaeological resources are the result of cultural activities of the ancestors and predecessors of contemporary Native Americans and in many cases retain special traditional and sacred significance for those communities.

Primary Standards. The Clean Air Act established two types of NAAQS – “primary and secondary.” "Primary" standards are designed to establish limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly.

Prime Agricultural Land. Means any of the following:

a. All land that qualifies for rating as class I or class II in the Natural Resource Conservation Service land use capability classifications.
b. Land that qualifies for rating 80 through 100 in the Storie Index Rating.
c. Land that supports livestock used for the production of food and fiber and that has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the U.S. Department of Agriculture.
d. Land planted with fruit- or nut-bearing trees, vines, bushes, or crops that have a nonbearing period of less than 5 years and that will normally return during the

commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than two hundred dollars ($200) per acre.

e. Land that has returned from the production of unprocessed agricultural plant products an annual gross value of not less than two hundred dollars ($200) per acre for 3 of the previous 5 years.

Public Access. Usually refers to a road or trail route over which a public agency claims a right-of-way for public use.

Public Involvement. A process designed to broaden the information base upon which agency decisions are made by (1) informing the public about activities, plans, and decision, and (2) encouraging public understanding about and participation in the planning processes that lead to final decision making.

Public Land Highway Project. Highway projects on the Federal Aid Highway System, entirely within the boundaries of a federal agency and significantly impacted by federal land and resource management activities.

Public Participation Activities. Meetings, conferences, seminars, workshops, tours, written comments, response to survey questionnaires, and similar activities designed and held to obtain comments from the general public and specific publics.

Recreation, Active. A type of recreation or activity that requires the use of organized play areas including, but not limited to, software, baseball, football and soccer fields, tennis and basketball courts, and various forms of children’s play equipment.

Recreation, Passive. Type of recreation or activity that does not require the use of organized play areas.

Regional. Pertaining to activities or economies at a scale greater than that of a single jurisdiction, and affecting a broad geographic area.

Revegetation. Enhancement of existing vegetation by planting or seeding; includes fertilizing and seeding.

Richter Scale. A measure of the size or energy release of an earthquake at its source. The scale is logarithmic; the wave amplitude of each number on the scale is 10 times greater than that of the previous whole number.

Right-of-Way (ROW). (1) The privilege that one person, or persons particularly described, may have of passing over the land of another in some particular line. (2) An easement through the land of another, obtained for access by donation, purchase or condemnation. Generally, does not apply to absolute purchases of ownership. (Real Estate Appraisal Terminology) The term is used to describe a strip of land occupied or intended to be occupied by certain transportation and public use facilities, such as roads and railroads, for pipe or utility pole lines, and for private or public passageways.

Riparian Areas. Areas that consist of geographically delineated areas with distinctive resource values and characteristics, which are composed of aquatic and riparian ecosystems, floodplains, and wetlands. They include, but are not limited to, all areas within a horizontal distance of 100 feet from the edge of perennial streams or other water bodies. (FSM 2526.05)

Riparian Ecosystem. The zone of transition between aquatic ecosystems and adjacent terrestrial ecosystems, identified by the soil characteristics and distinctive vegetation communities that require free or unbound water at least seasonally. (FSM 2526.11)

Riverwash. Unstabilized sandy, silty, clayey, or gravelly sediment that is flooded and washed and reworked frequently by rivers.

Record of Decision (ROD). After preparing an EIS, at the time of its decision, a federal agency must prepare a ROD, a written public record explaining why it has taken a particular course of action (40 CFR 1505.2).

Runoff. That part of precipitation, snow melt, or irrigation water that runs off the land into streams or other surface-water. It can carry pollutants from the air and land into receiving waters.

Secondary Standards. The Clean Air Act established two types of National Ambient Air Quality Standards- “primary and secondary.” "Secondary" standards set limits to protect public welfare, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

Sedimentation. The deposition of detached soil and rock material transported by or suspended in water.

Seismic. Caused by or subject to earthquakes or earth vibrations.

Sensitive Habitats. Habitats for emphasis species that are extremely vulnerable to destruction or adverse modification. Impact to these habitats would result in a significant decline of species productivity or survivability. These areas include important habitat of all threatened, endangered, and sensitive (TE&S) species.

Sensitive Species. Native species with population viability threats. Special management is needed to ensure their survival. In addition to federal and state official threatened and endangered species, sensitive species include the Regional Forester’s lists of sensitive plants and animals as well as the Forest Supervisor’s list of Forest Sensitive Species.

Short-Term Effects. Those effects that will not be significant beyond the Resources Planning Act horizon of 50 years.

Significant. A term used to denote a degree of effect relative to a threshold or standard for additional evaluation or mitigation.

Smog. A combination of smoke, ozone, hydrocarbons, nitrogen oxides, and other chemically reactive compounds, which, under certain conditions of weather and sunlight, may result in a murky brown haze that causes adverse health effects. The primary source of smog in California is motor vehicle exhaust.

Soil Productivity. The capability of a soil to produce a specific crop such as fiber, forage, etc., under defined levels of management. Generally dependent on available soil moisture, nutrients, and climatic conditions.

Soil Surveys. Systematic examinations of soils in the field and in laboratories; such exams are at differing “orders” and interpretation according to their adaptability for various crops, grasses, and trees. There are five classed orders of surveys, with order 1 being the highest intensity, through order 5 being the lowest intensity.

Species of Regional Special Concern. Species formerly considered as candidates for federal listing; species of concern to the state of California including those species listed as threatened and endangered by the state of California under the California Endangered Species Act; those species listed as sensitive by the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP); and species that are regionally rare or of limited distribution and listed by the California Native Plant Society (CNPS).

Special Status Species. Special status species are defined as those plant and animal species listed as threatened, endangered, or proposed as such, by the USFWS under the Endangered Species Act.

Threatened and Endangered Species. A species or subspecies of animals or plants whose prospects of survival and reproduction are in immediate jeopardy (Endangered) or likely to become so (Threatened) within the foreseeable future. These species are identified by the Secretary of Interior in accordance with the 1973 Endangered Species Act. California also classifies Threatened and Endangered species within the state.

Traditional Cultural Properties. Traditional cultural properties are locations or resources that are eligible for inclusion in the NRHP because of their association with cultural practices or beliefs of a living community that (a) are rooted in that community’s history and (b) are important in maintaining the continuing cultural identity of the community (Parker and King 1994). They may or may not contain physical remains. For this study area, traditional cultural properties are most likely to be associated with Native American cultures.

Trailhead. A point where a development trail begins or intersects with another transportation facility (road, trail, lake, river, etc.) and provides for transfer from one mode of transportation to another (parking lot, loading ramp, stock holding, watering facility, etc.).

Trip. A one-way journey that proceeds from an origin to a destination via a single mode of transportation; the smallest unit of movement considered in transportation studies. Each trip has one "production end" (or origin--often from home, but not always), and one "attraction end" (destination).

Trip Generation. The dynamics that account for people making trips in automobiles or by means of public transportation. Trip generation is the basis for estimating the level of use for a transportation system and the impact of additional development or transportation facilities on an existing, local transportation system. Trip generations of households are correlated with destinations that attract household members for specific purposes.

Utility Corridors. Rights-of-way or easements for utility lines on either publicly or privately owned property. (See "Rights-of-Way" or "Easement")

Vehicle-Miles Traveled (VMT). A key measure of overall street and highway use. Reducing VMT is often a major objective in efforts to reduce vehicular congestion and achieve regional air quality goals.

View Corridor. The line of sight identified as to height, width, and distance of an observer looking toward an object of significance to the community (e.g., ridgeline, river, historic building, etc.); the route that directs the viewers' attention.

Viewshed. The area within view from a defined observation point.

Visual Quality Objective (VQO). A desired level of excellence based on physical and sociological characteristics of an area. Refers to degree of acceptable alteration of the landscape. Classes include preservation, retention, partial retention, modification, and maximum modification:

Preservation: Allows ecological changes only.

Retention: Provides for management activities that are not visually evident.

Partial Retention: Management activities remain visually subordinate to the characteristic.

Modification: Management activities may visually dominate the original characteristic landscape. They must borrow from naturally established form, line, color, or texture so completely and at such a scale that its visual characteristics are those of natural occurrences within the surrounding area or character type.

Maximum modification: Management activities dominate the characteristic landscape. However, when viewed as background, the visual characteristics must be those of natural occurrences within the surrounding area or character type. When viewed as foreground or middle ground, they may not appear to completely borrow from naturally established form, line, color, or texture.

Visual Resource. The composite of basic terrain, geologic features, water features, vegetative patterns, and land use effects that typify a land unit and influence the visual appeal the unit may have for visitors.

Watershed. The area that contributes water to a drainage or stream.

Wetlands. Those areas that are inundated by surface water or groundwater with a frequency sufficient under normal circumstances to support a prevalence of vegetation or aquatic life that requires saturated or seasonably saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mudflats, and natural ponds. (FSM 2527.05)

15.0 INDEX OF KEY WORDS